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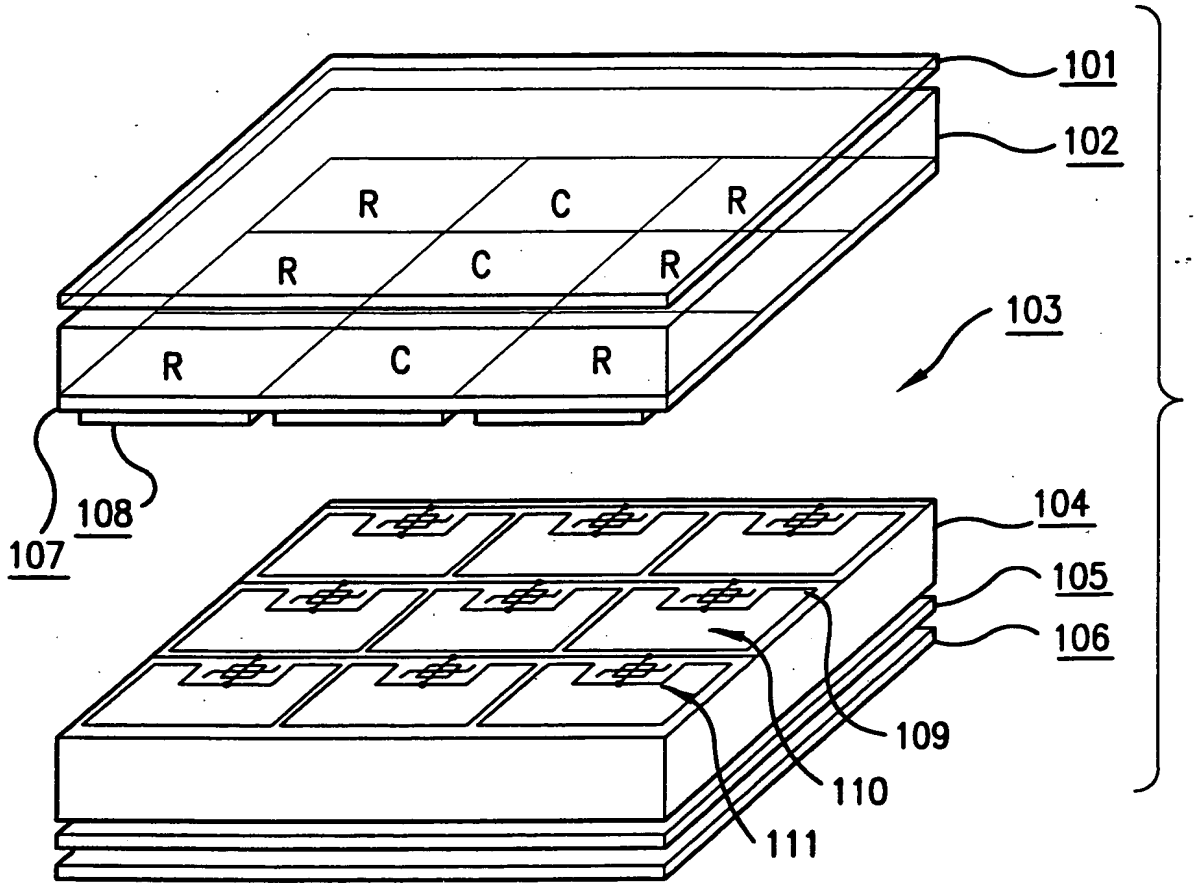


FIG. 1

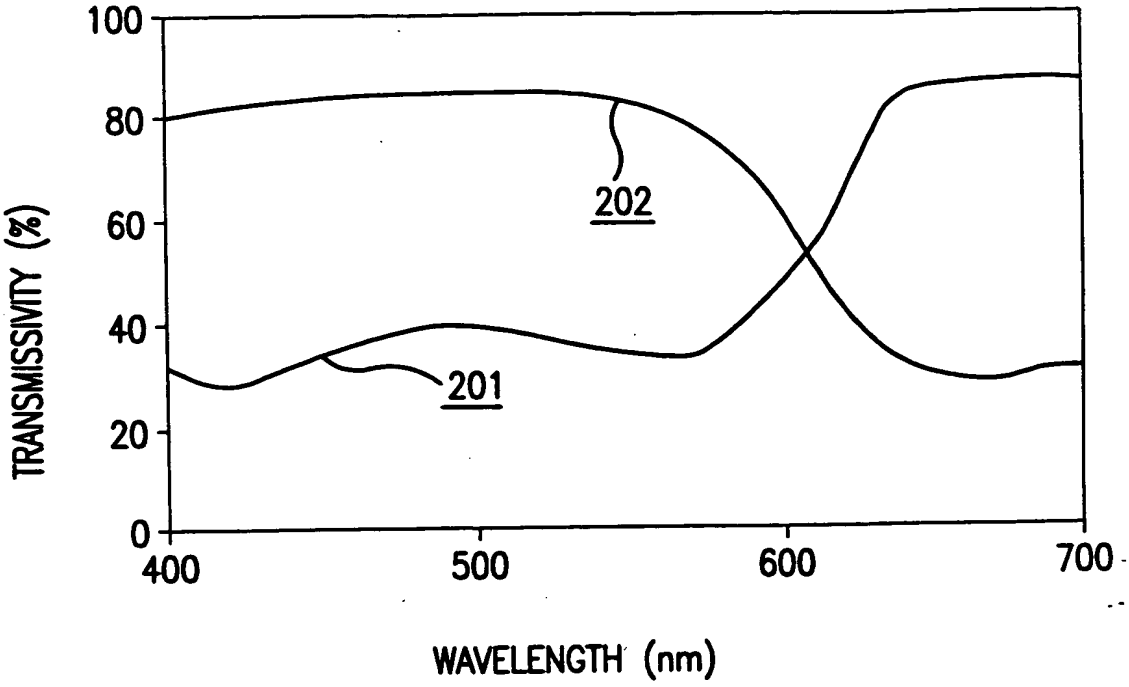

100
80
60
40
20
0
400
500
600
700
TRANSMISSIVITY (%)
WAVELENGTH (nm)
202
201

FIG. 2

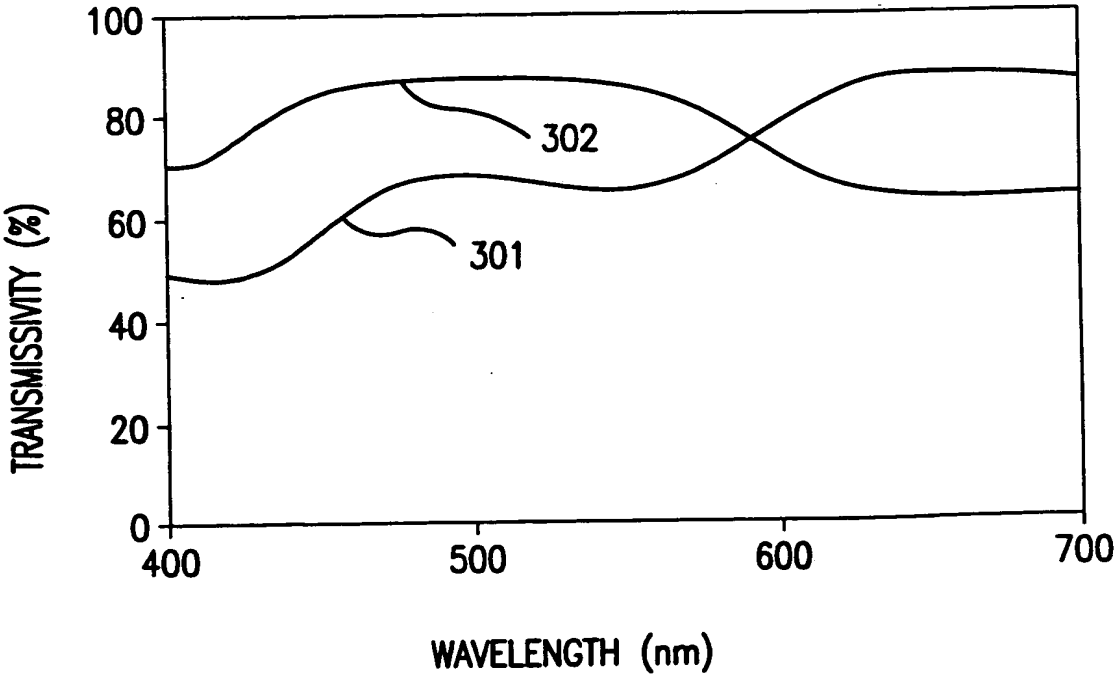

100
80
60
40
20
0
400
500
600
700
TRANSMISSIVITY (%)
WAVELENGTH (nm)
302
301

FIG. 3

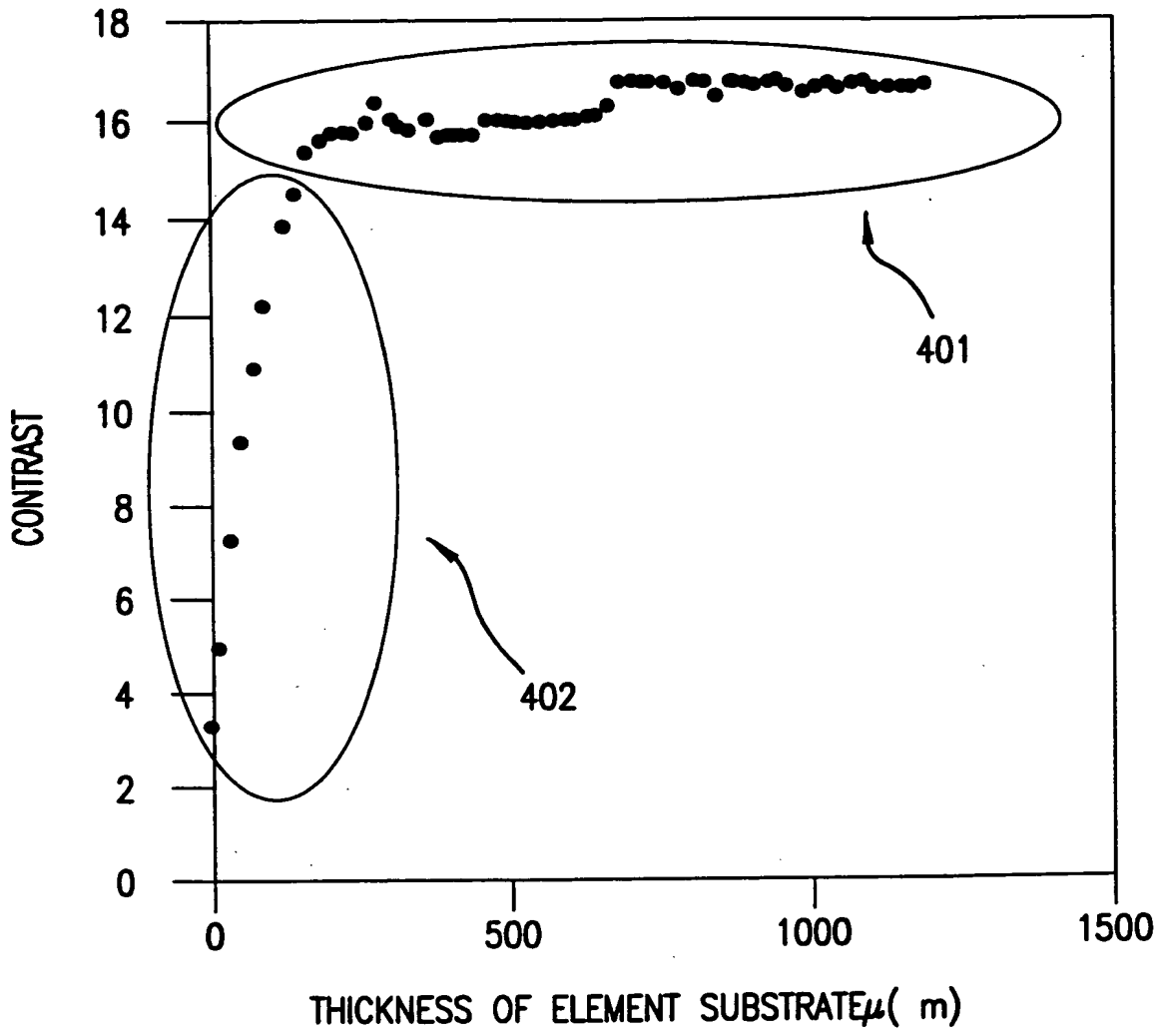

18
16
14
12
10
8
6
4
2
0
CONTRAST
0
500
1000
1500
THICKNESS OF ELEMENT SUBSTRATEμ(m)
401
402

FIG. 4

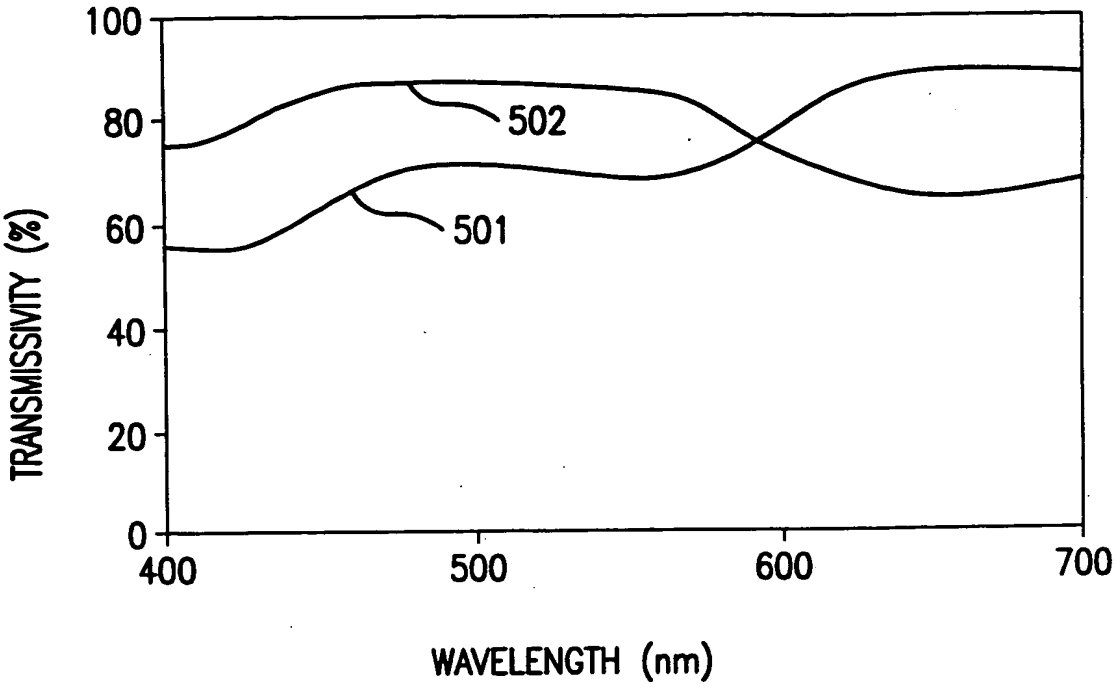

100
80
60
40
20
0
TRANSMISSIVITY (%)
502
501
400
500
600
700
WAVELENGTH (nm)

FIG. 5

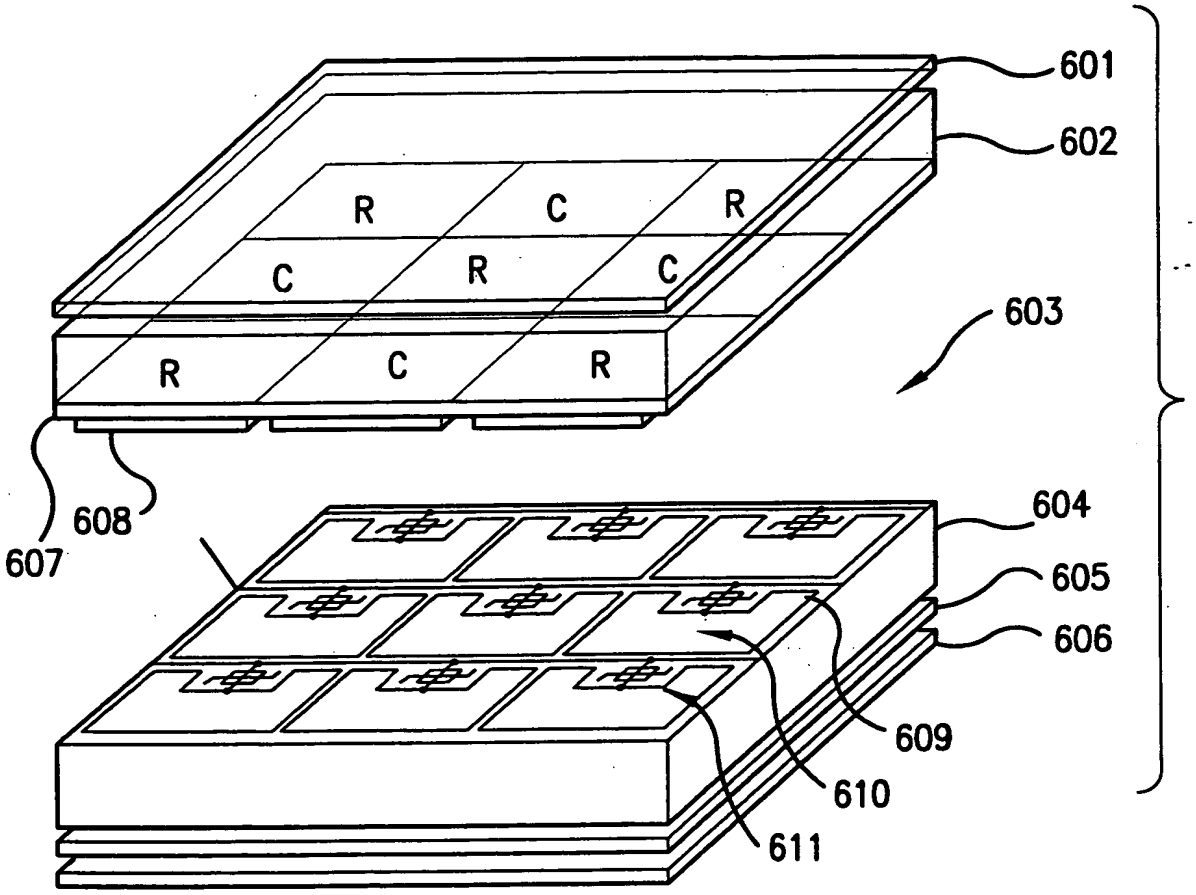


FIG. 6

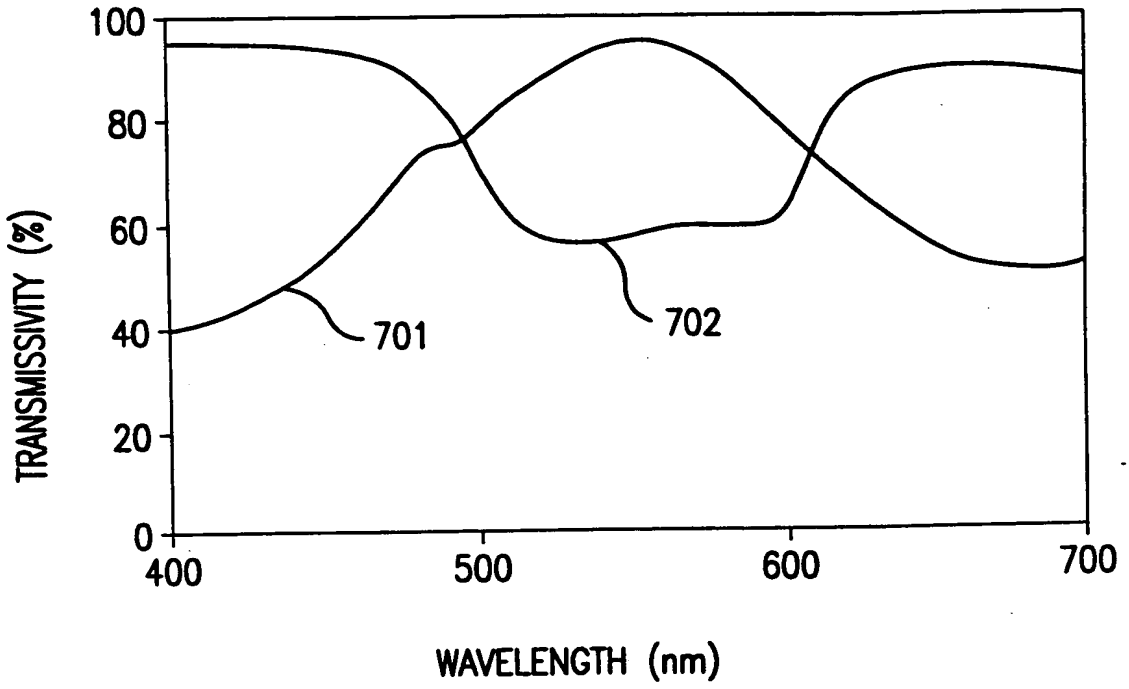

100
80
60
40
20
0
TRANSMISSIVITY (%)
701
702
400
500
600
700
WAVELENGTH (nm)

FIG. 7

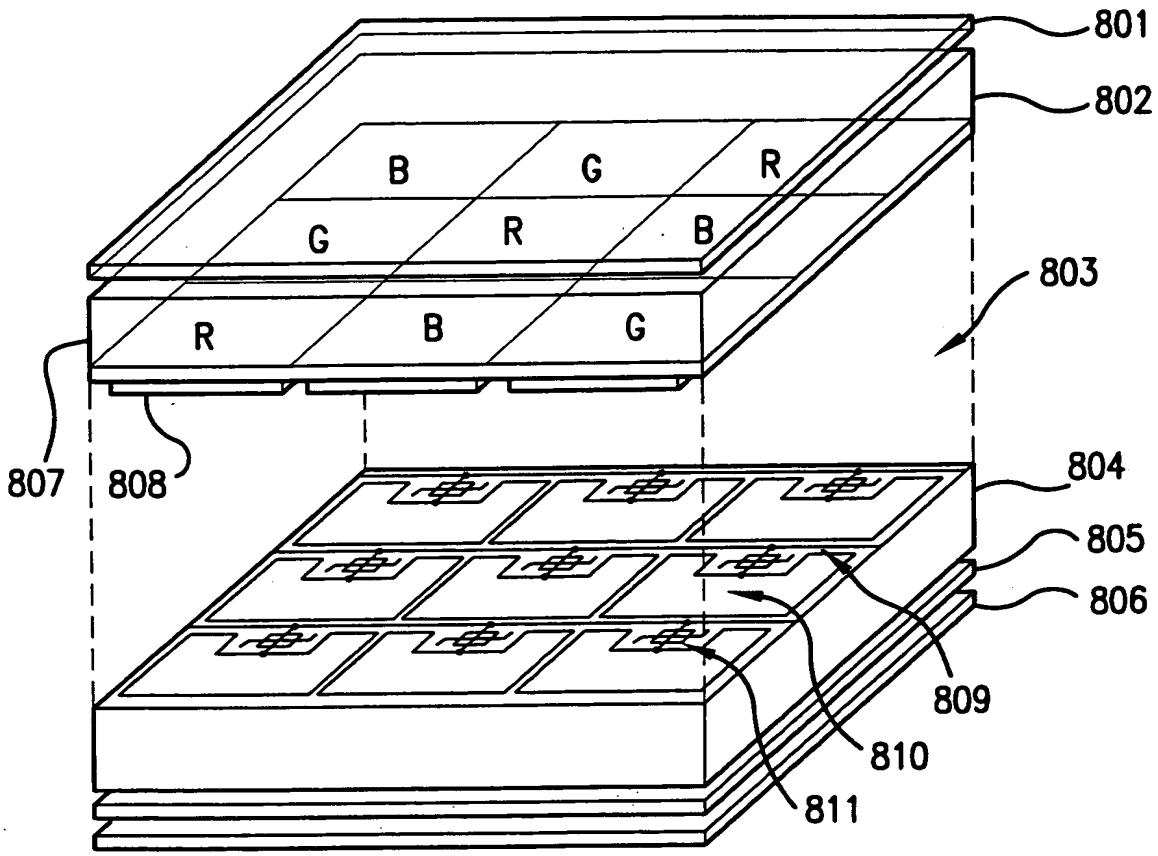


FIG. 8

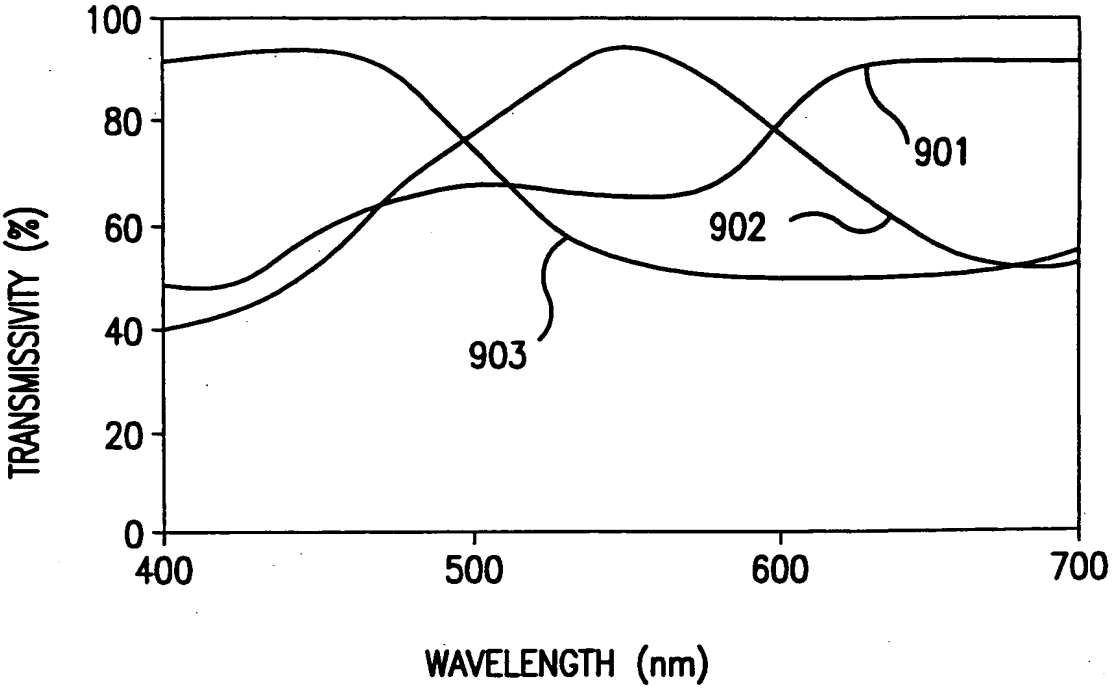

100
80
60
40
20
0
400
500
600
700
TRANSMISSIVITY (%)
WAVELENGTH (nm)
901
902
903

FIG. 9

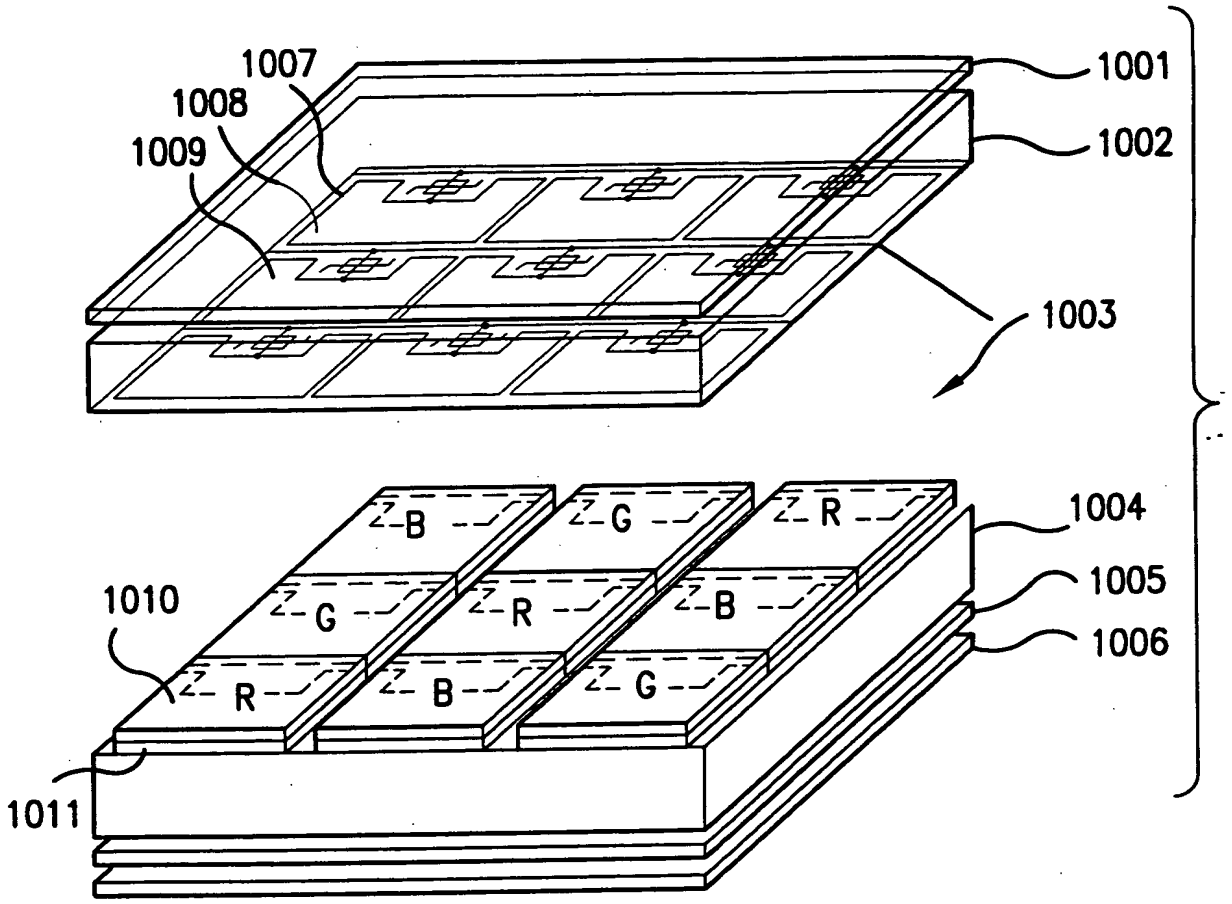

1007
1008
1009
1001
1002
1003
1004
1005
1006
1010
1011
B
G
R
G
R
B
R
B
G

FIG. 10

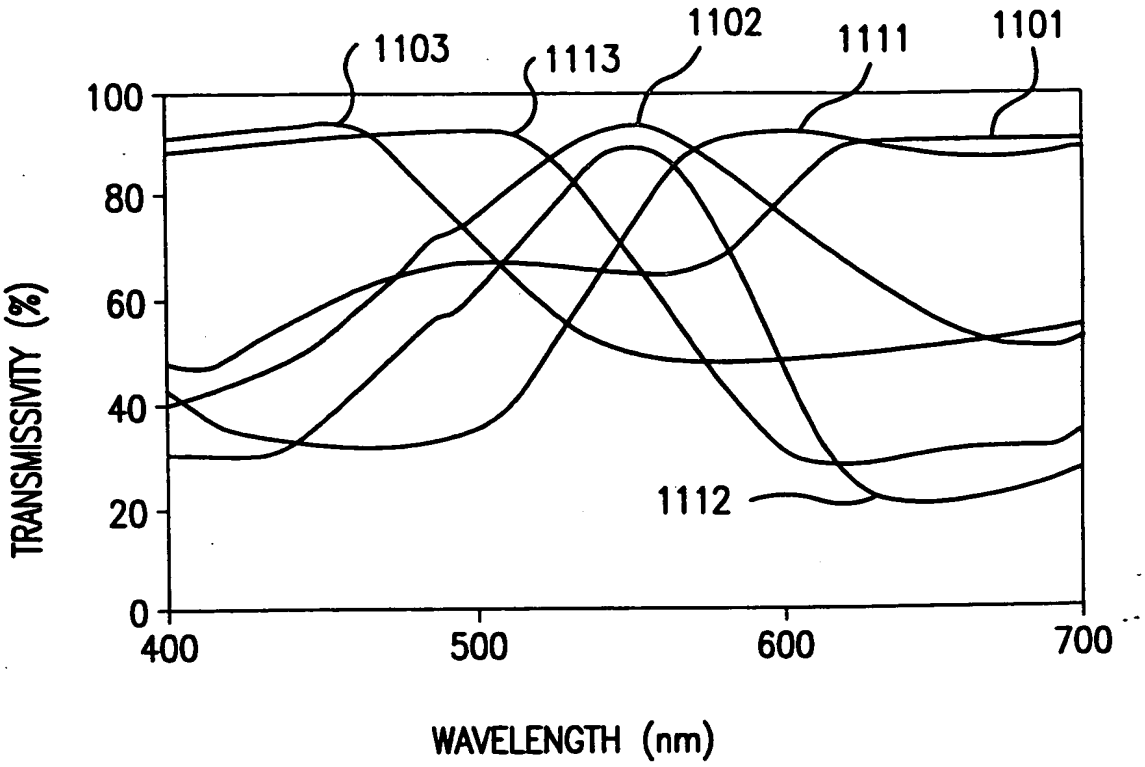

1103
1113
1102
1111
1101
1112
100
80
60
40
20
0
400
500
600
700
TRANSMISSIVITY (%)
WAVELENGTH (nm)

FIG. 11

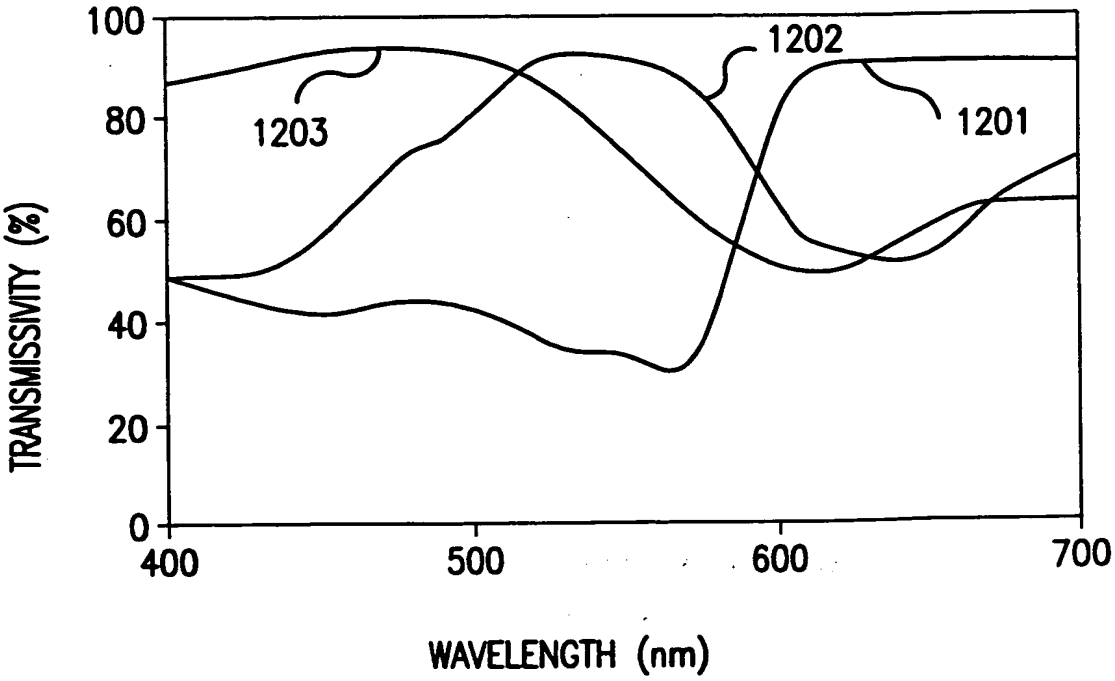

1202
1203
1201
100
80
60
40
20
0
400
500
600
700
TRANSMISSIVITY (%)
WAVELENGTH (nm)

FIG. 12

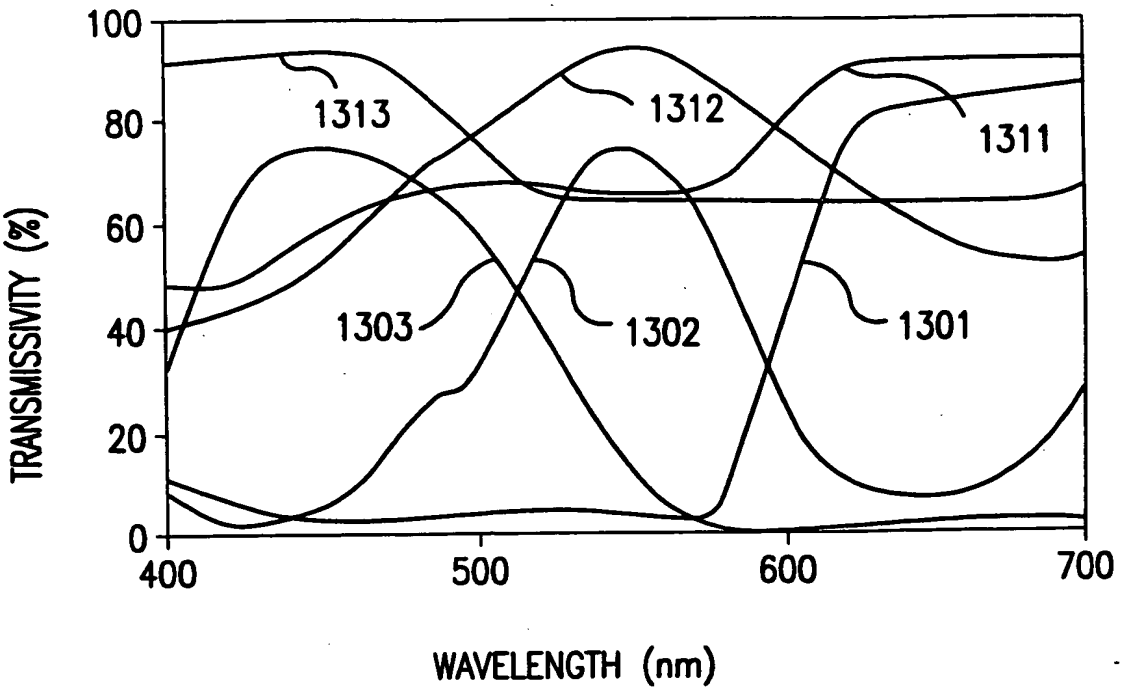

100
80
60
40
20
0
400
500
600
700
TRANSMISSIVITY (%)
WAVELENGTH (nm)
1313
1312
1311
1303
1302
1301

FIG. 13

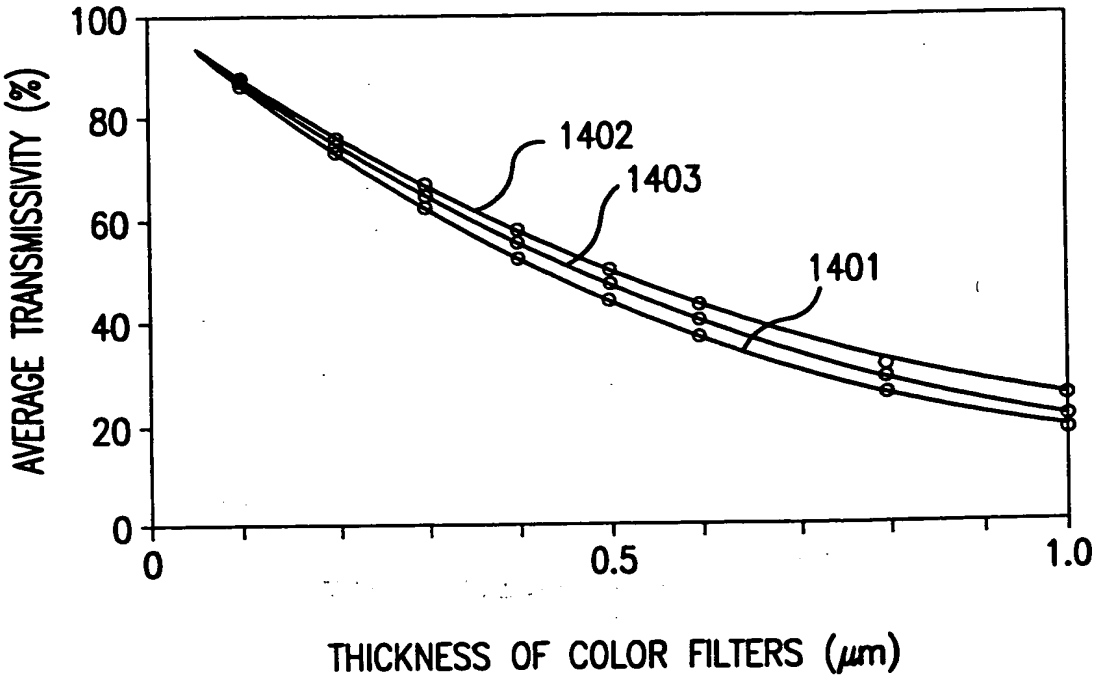

100
80
60
40
20
0
0
0.5
1.0
AVERAGE TRANSMISSIVITY (%)
THICKNESS OF COLOR FILTERS (μm)
1402
1403
1401

FIG. 14

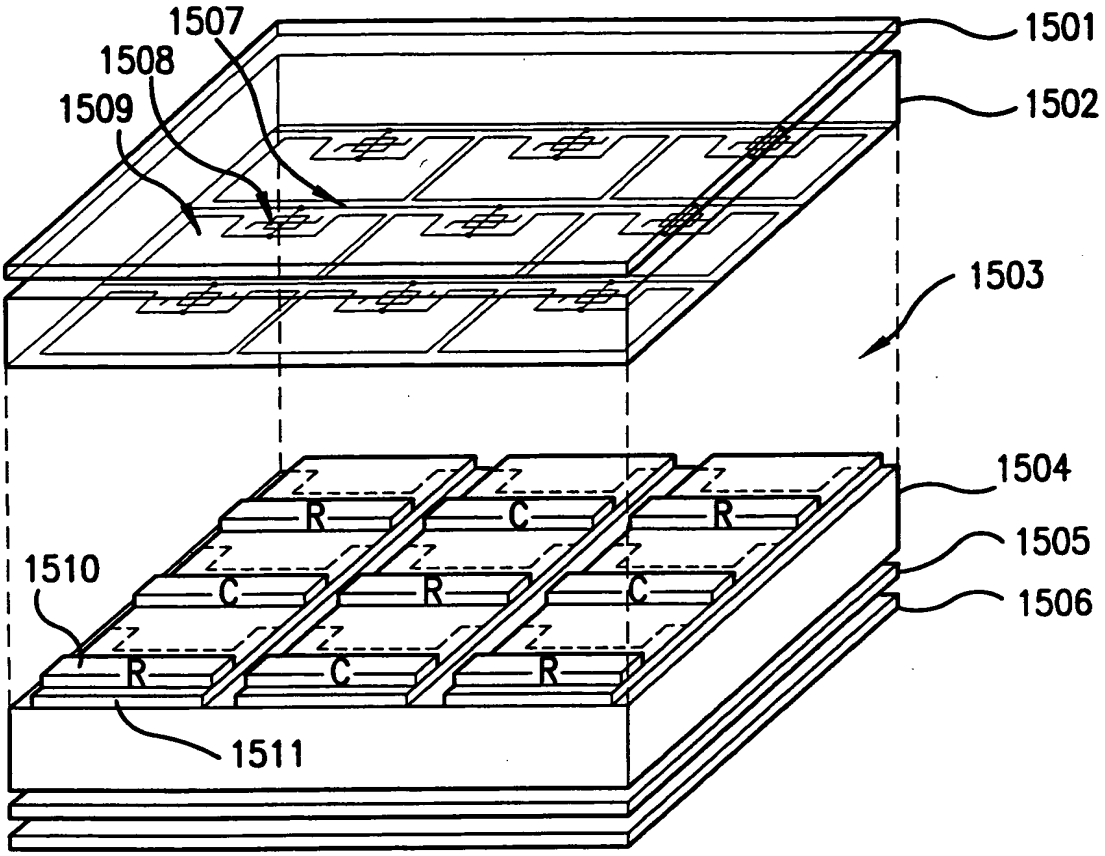

1507
1508
1509
1501
1502
1503
1504
1505
1506
1510
1511
R
C
R
C
R
C
R
C
R

FIG. 15

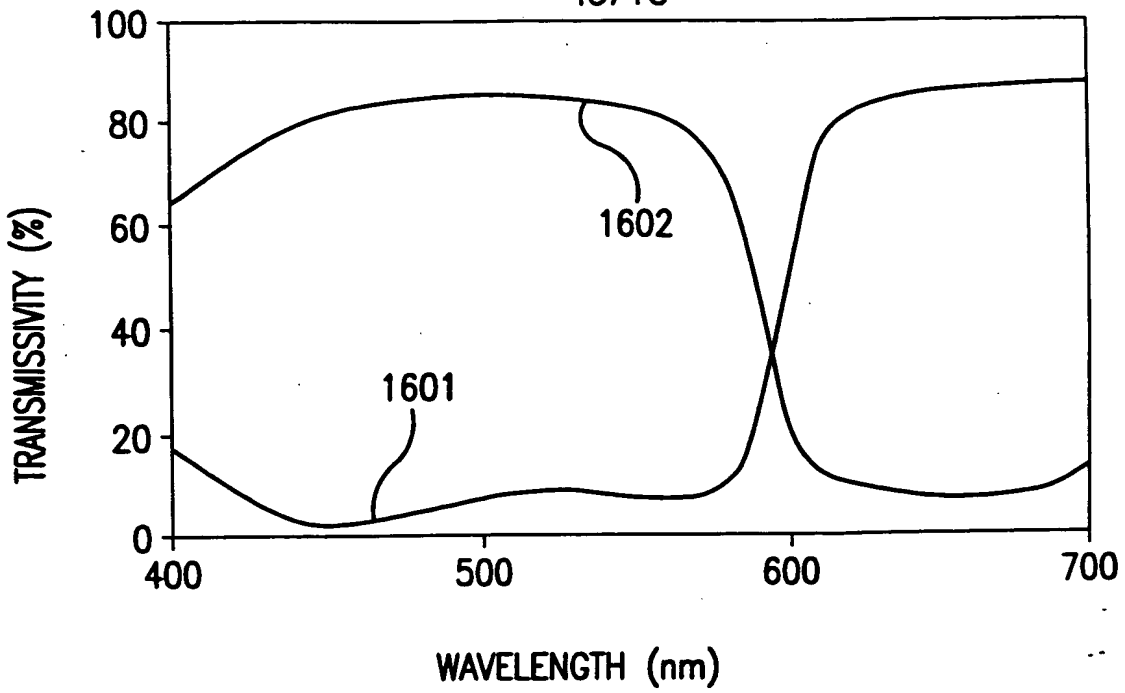

100
80
60
40
20
0
TRANSMISSIVITY (%)
1602
1601
400
500
600
700
WAVELENGTH (nm)

FIG. 16

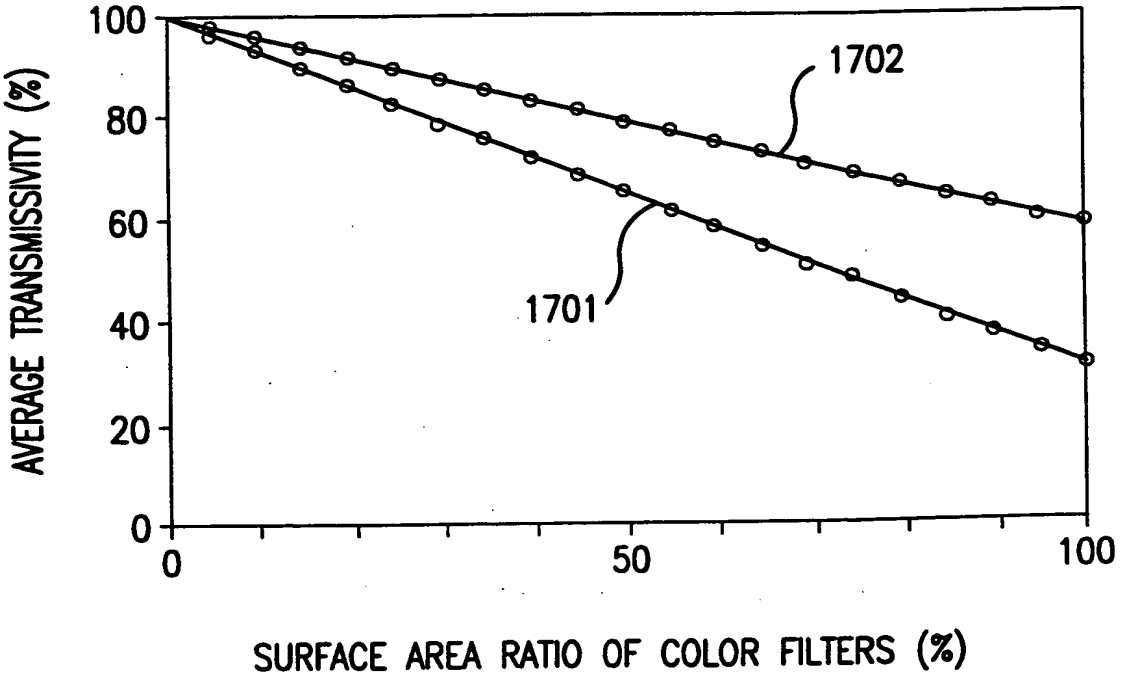

100
80
60
40
20
0
AVERAGE TRANSMISSIVITY (%)
1702
1701
0
50
100
SURFACE AREA RATIO OF COLOR FILTERS (%)

FIG. 17

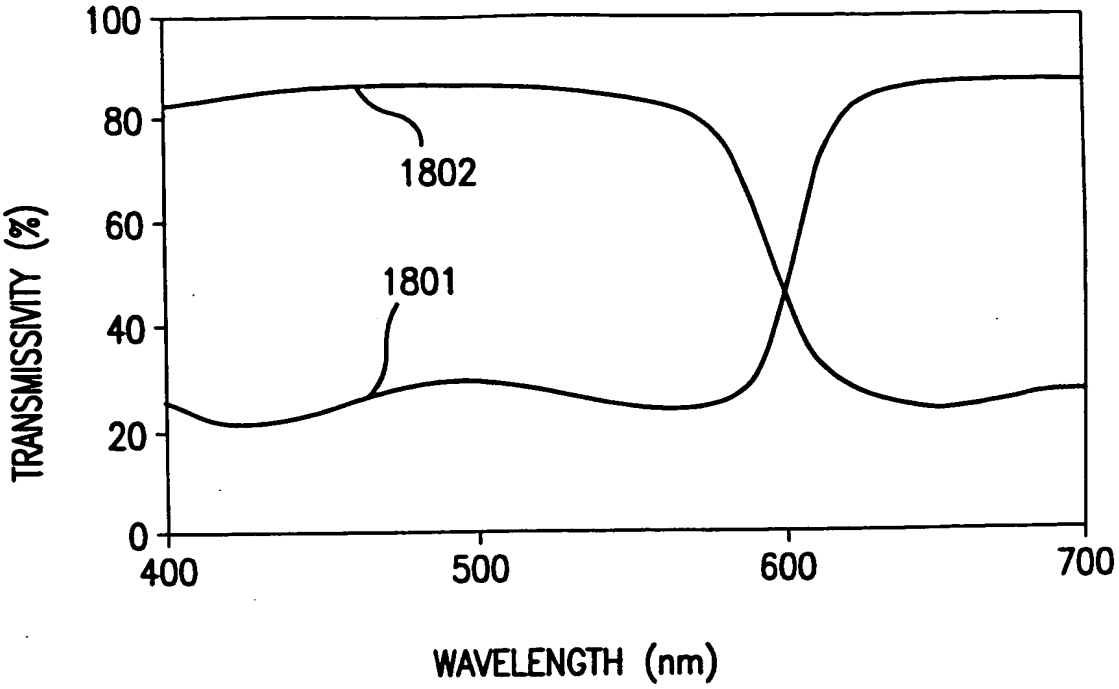

100
80
60
40
20
0
400
500
600
700
1802
1801
TRANSMISSIVITY (%)
WAVELENGTH (nm)

FIG. 18

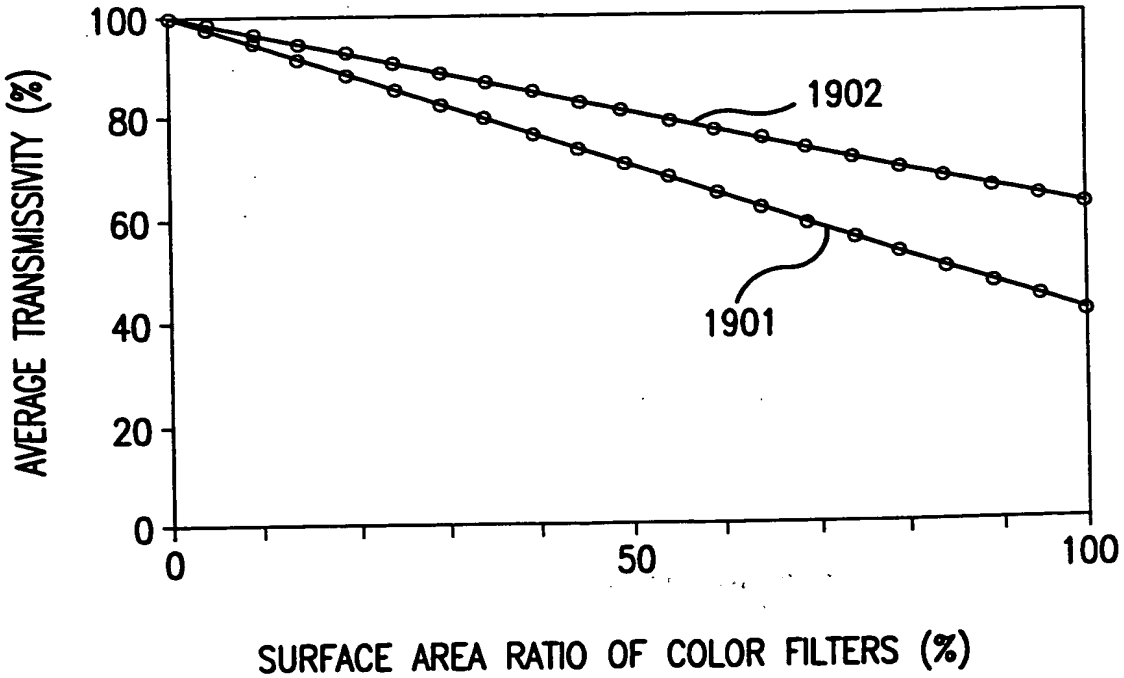

100
80
60
40
20
0
0
50
100
1902
1901
AVERAGE TRANSMISSIVITY (%)
SURFACE AREA RATIO OF COLOR FILTERS (%)

FIG. 19

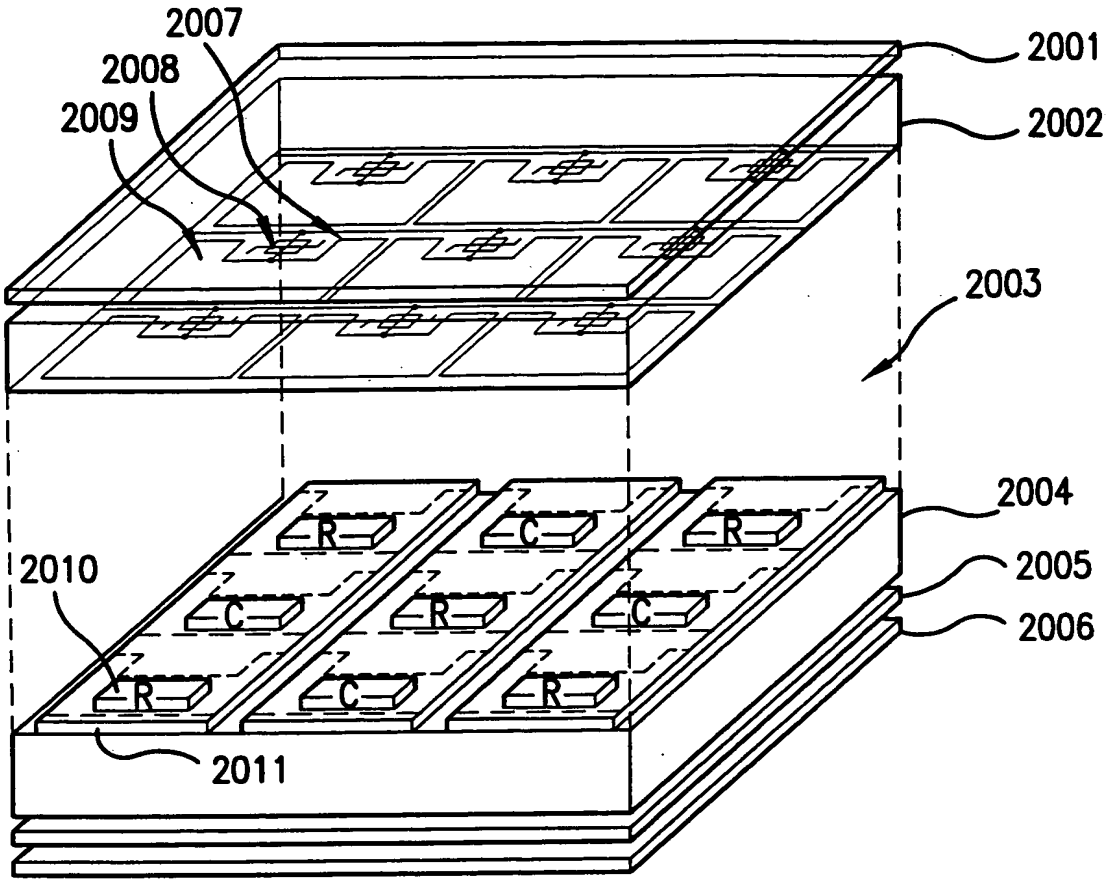

2007
2008
2009
2001
2002
2003
2004
2005
2006
2010
2011
R
C
R
C
R
C
R
C
R

FIG. 20

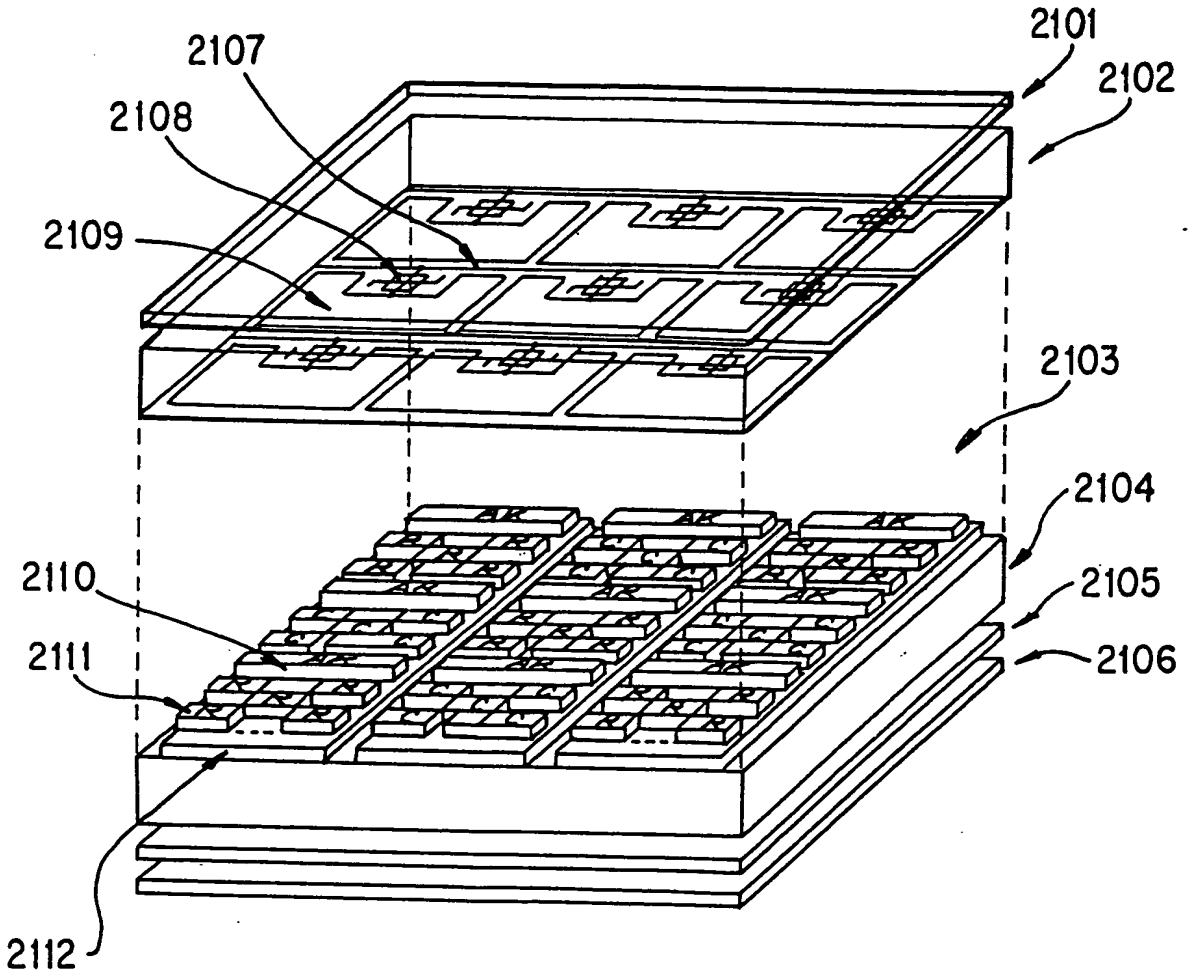


FIG. 21

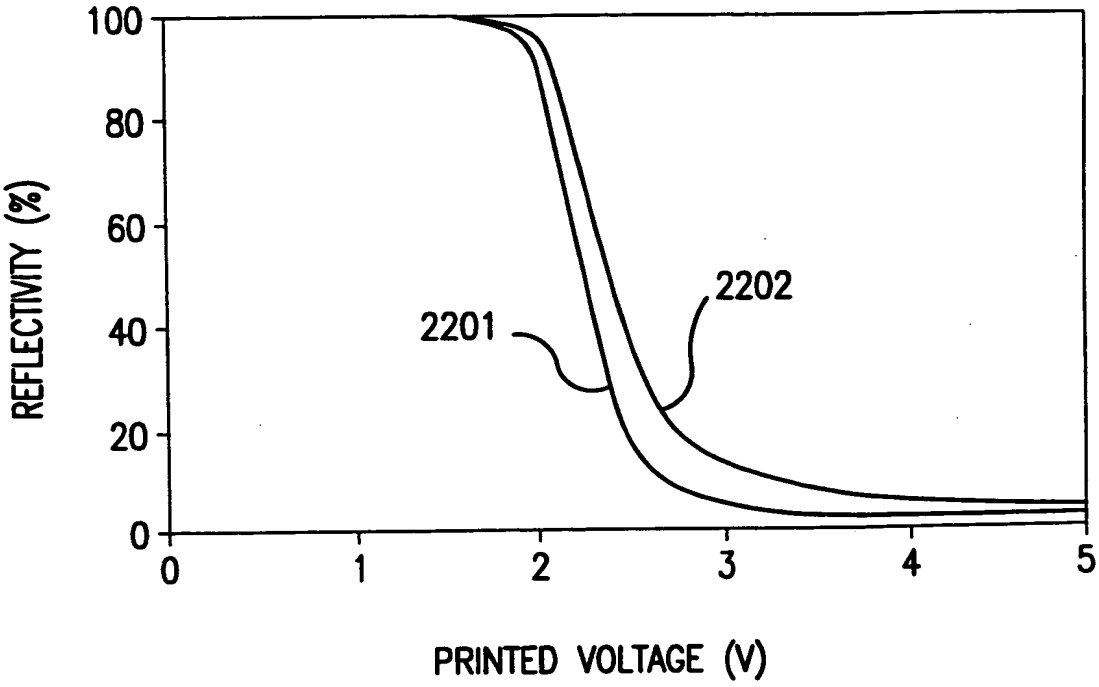

100
80
60
40
20
0
REFLECTIVITY (%)
0
1
2
3
4
5
PRINTED VOLTAGE (V)
2201
2202

FIG. 22

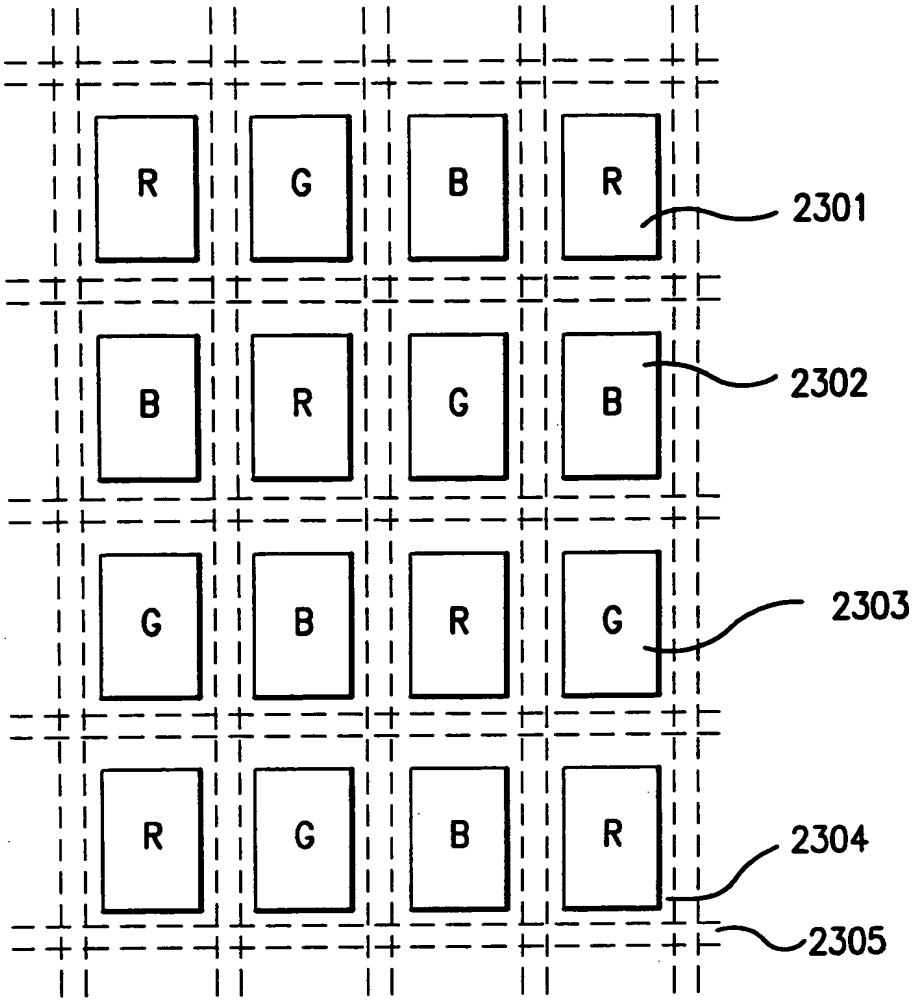


FIG. 23(a)

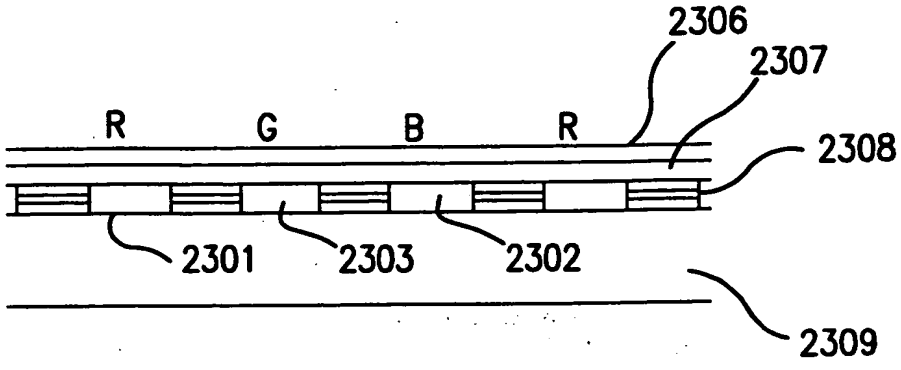


FIG. 23(b)

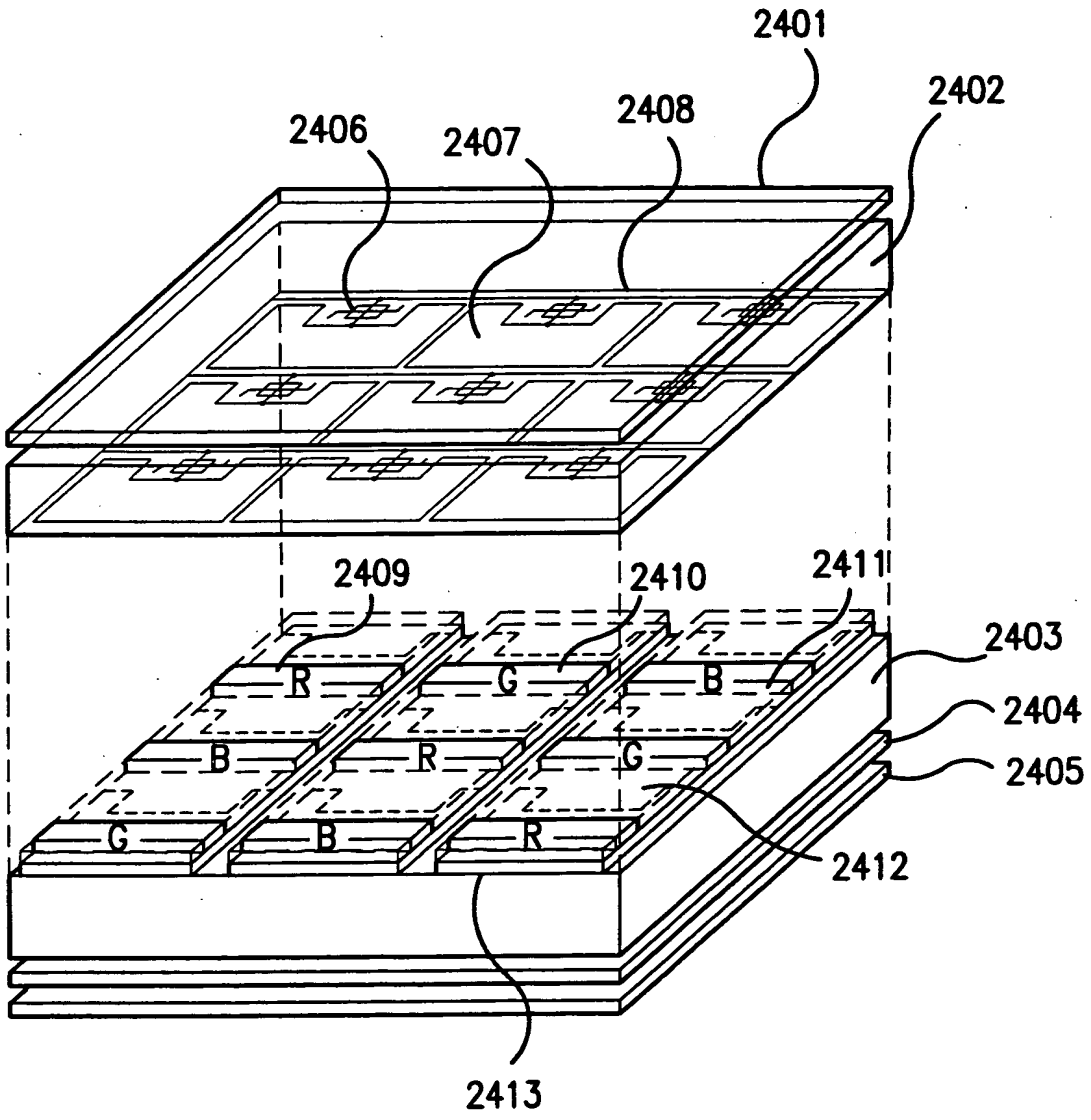

2401
2402
2406
2407
2408
2409
2410
2411
2403
2404
2405
2412
2413
R
G
B
B
R
G
G
B
R

FIG. 24

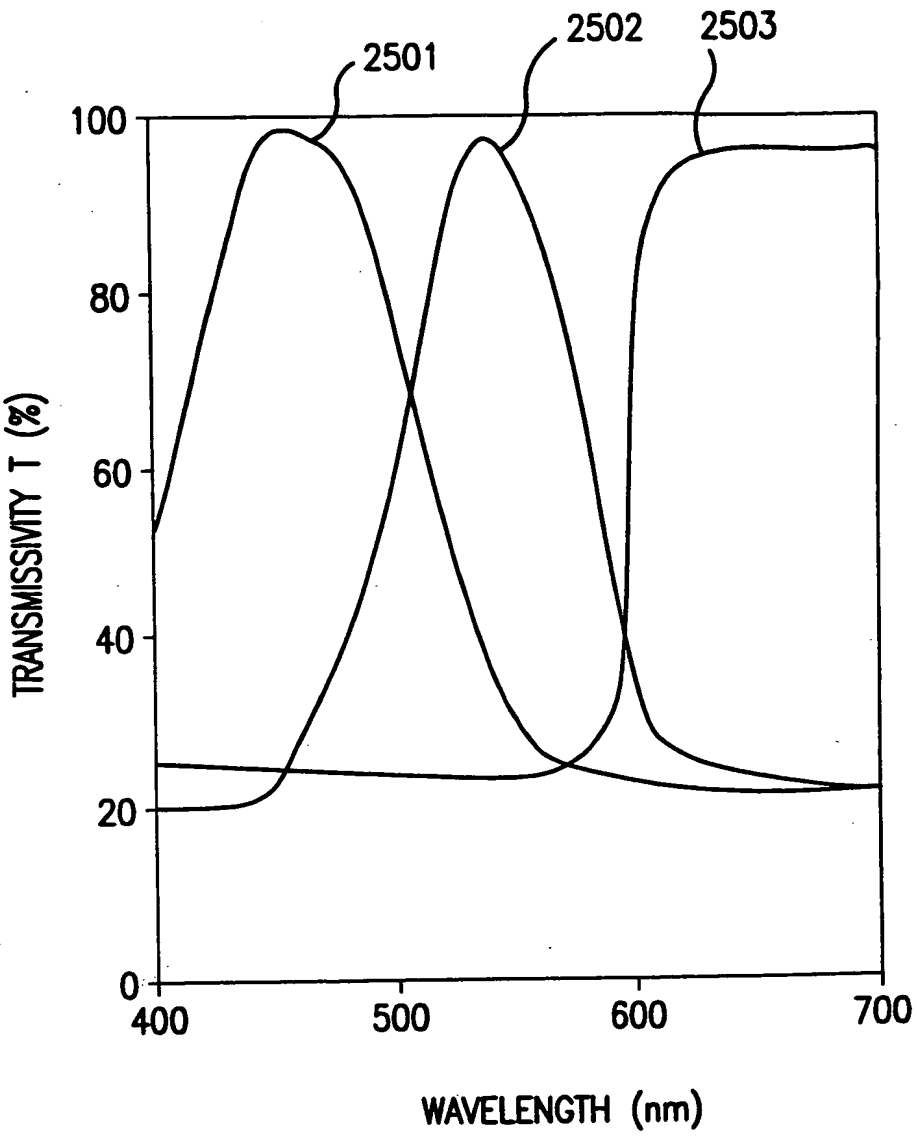

2501
2502
2503
100
80
60
40
20
0
400
500
600
700
TRANSMISSIVITY T (%)
WAVELENGTH (nm)

FIG. 25

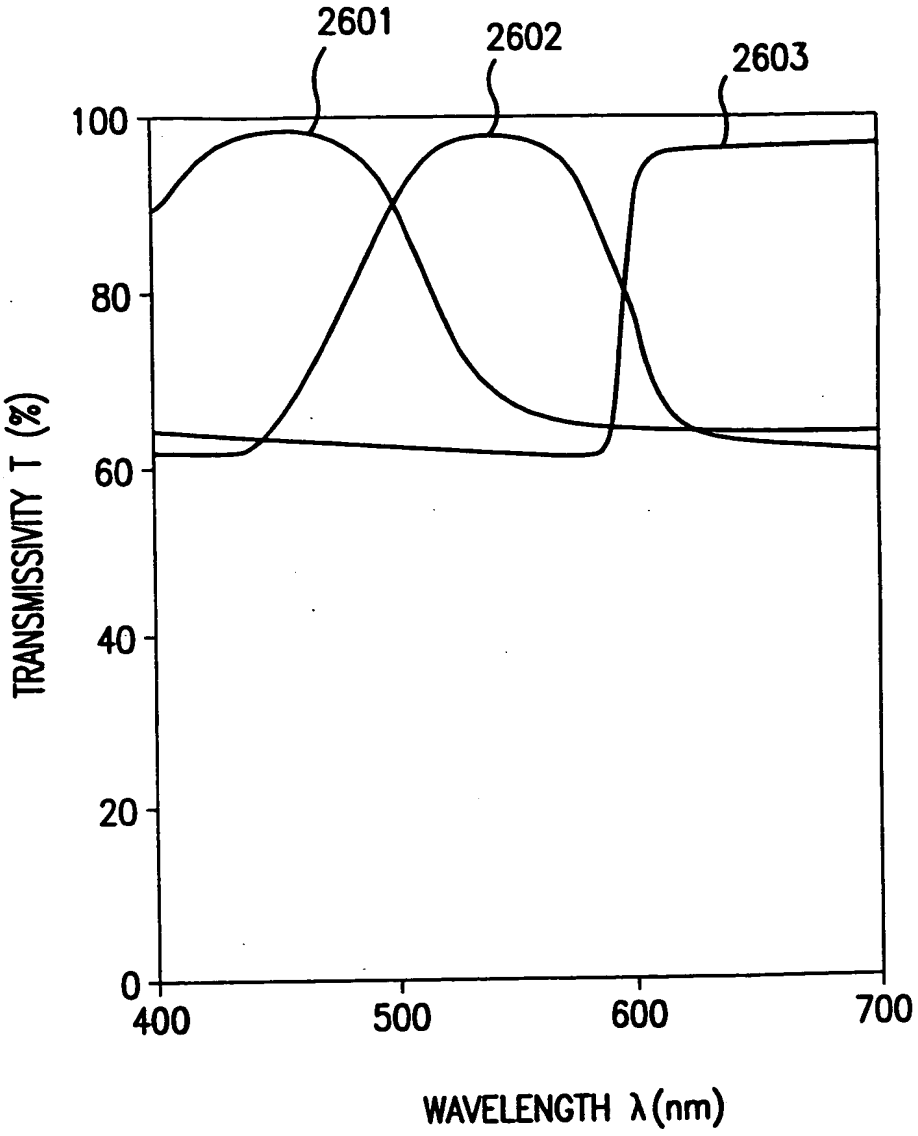

2601
2602
2603
100
80
60
40
20
0
400
500
600
700
TRANSMISSIVITY T (%)
WAVELENGTH λ(nm)

FIG. 26

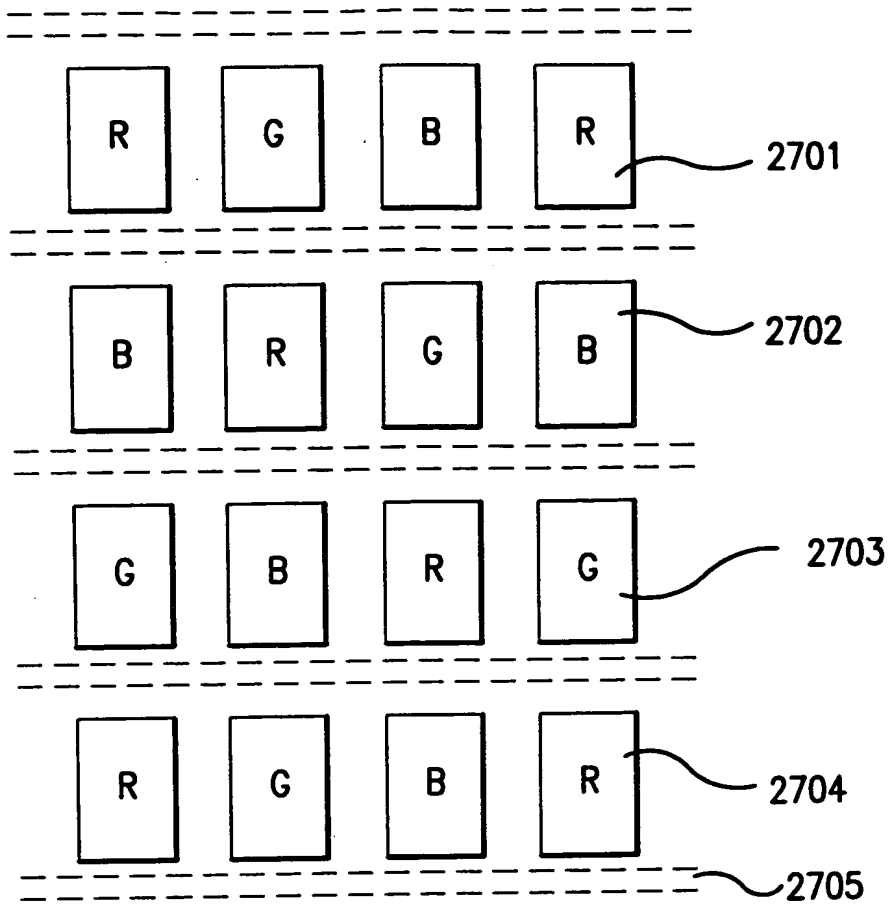


FIG. 27(a)

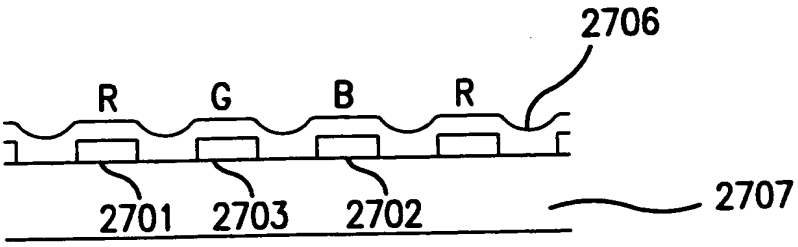


FIG. 27(b)

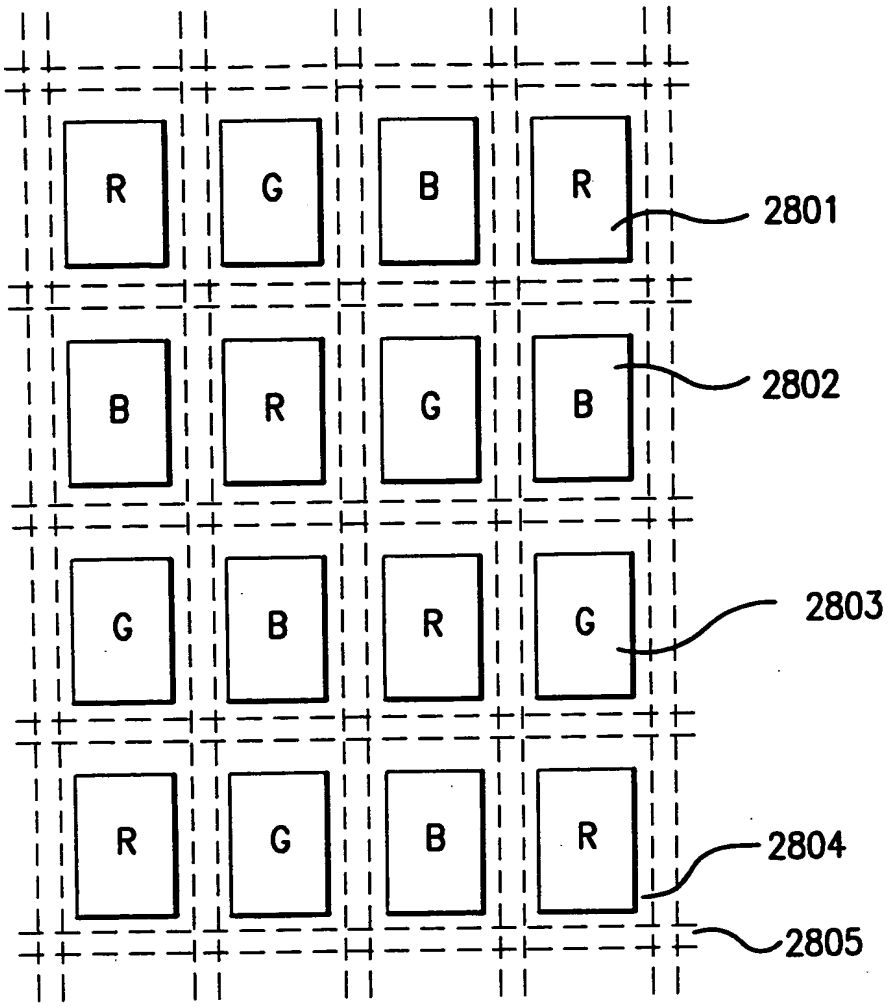


FIG. 28(a)

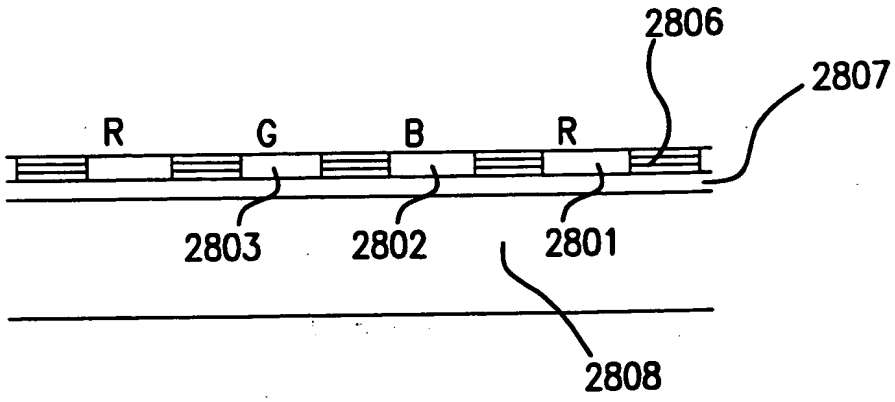


FIG. 28(b)

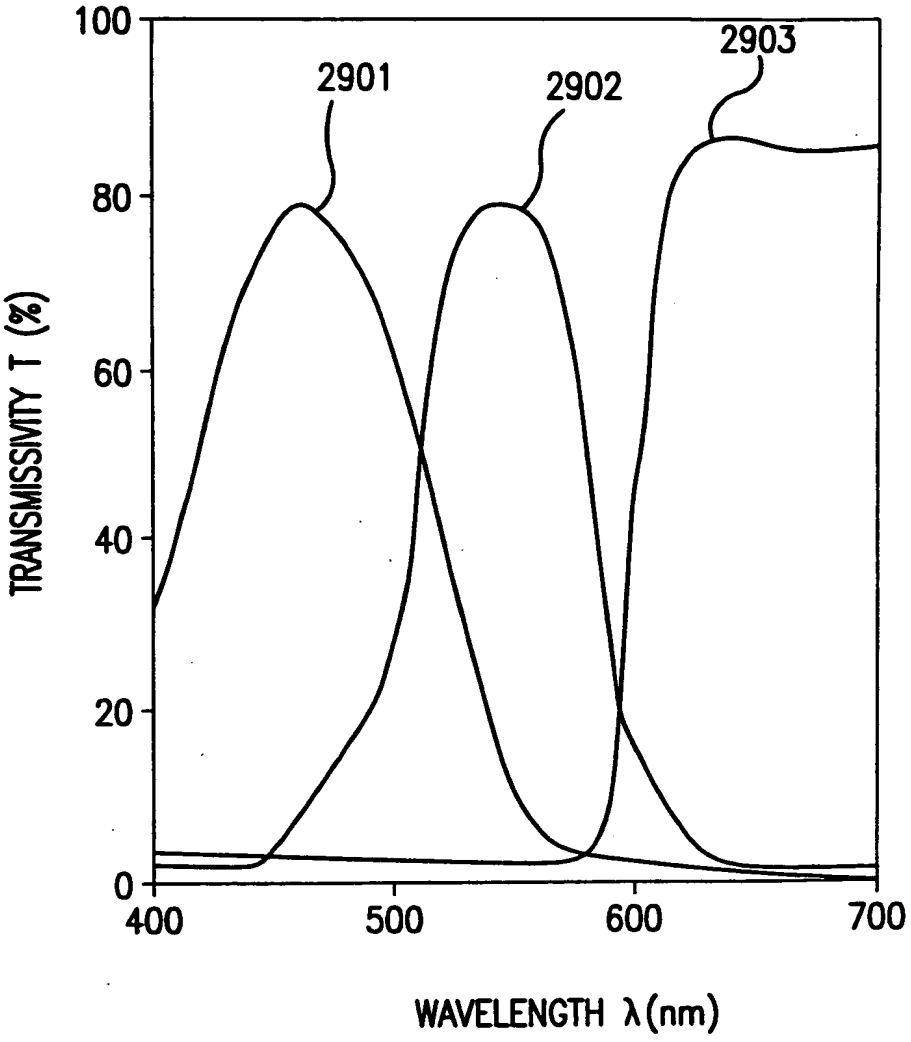

100
80
60
40
20
0
400
500
600
700
2901
2902
2903
TRANSMISSIVITY T (%)
WAVELENGTH λ(nm)

FIG. 29

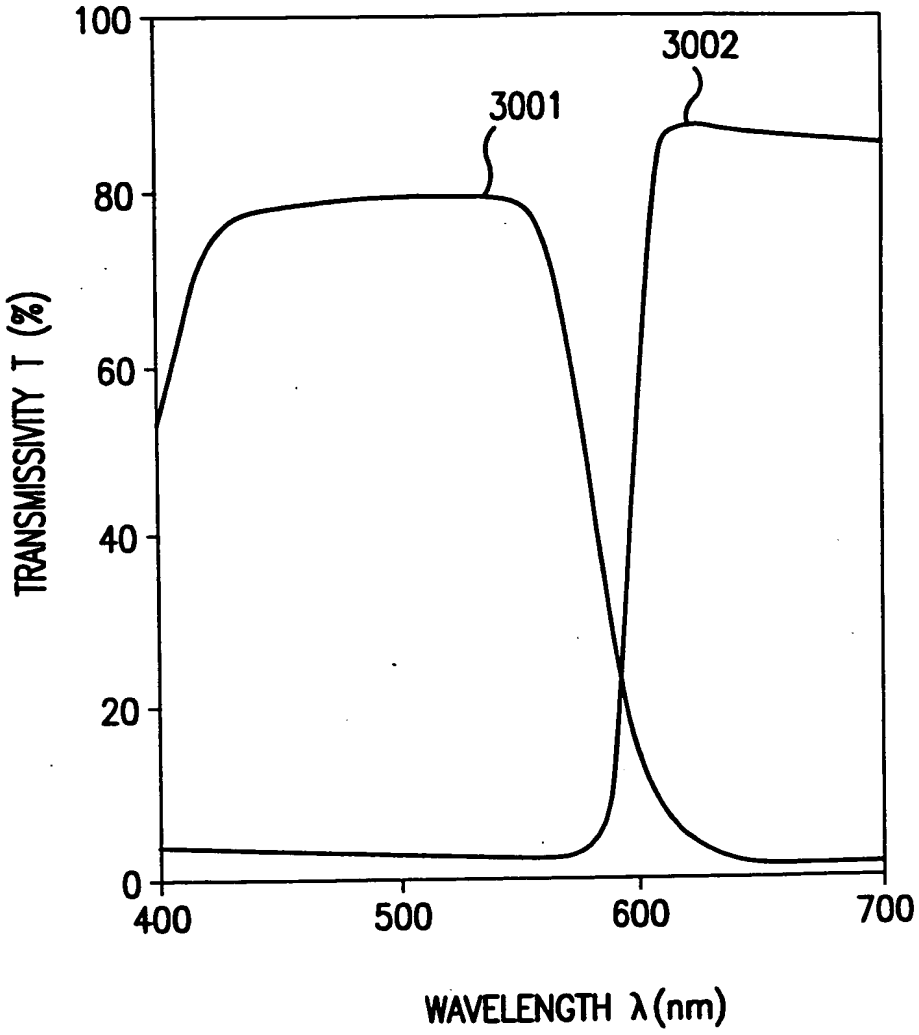

100
80
60
40
20
0
400
500
600
700
3001
3002
TRANSMISSIVITY T (%)
WAVELENGTH λ (nm)

FIG. 30

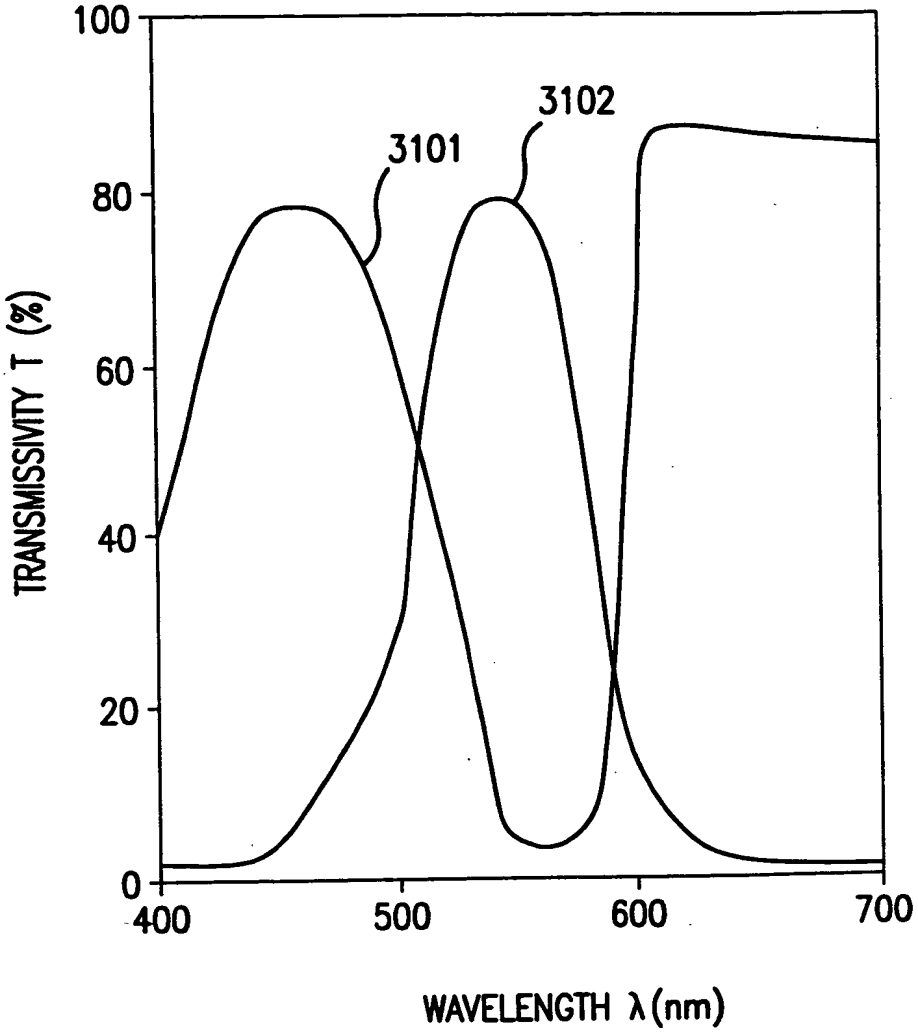

100
80
60
40
20
0
400
500
600
700
3101
3102
TRANSMISSIVITY T (%)
WAVELENGTH λ(nm)

FIG. 31

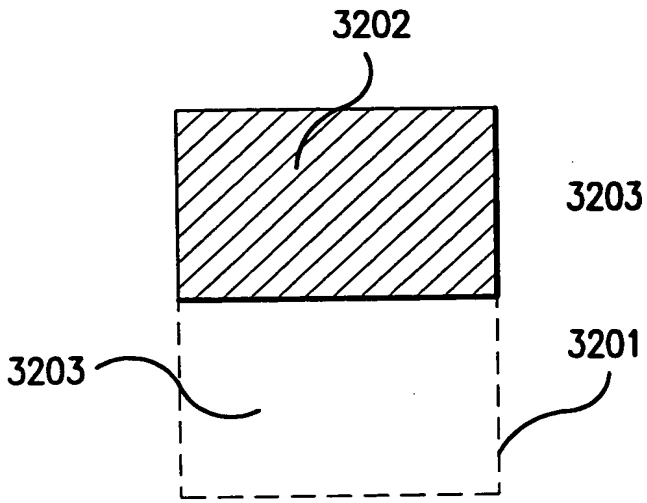


FIG. 32(a)

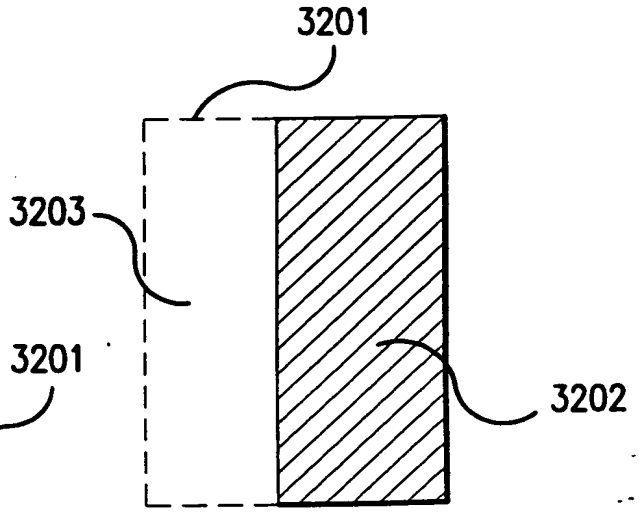


FIG. 32(b)

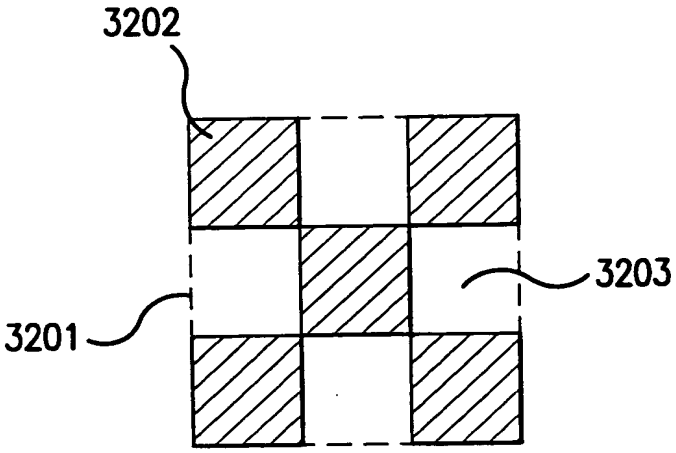


FIG. 32(c)

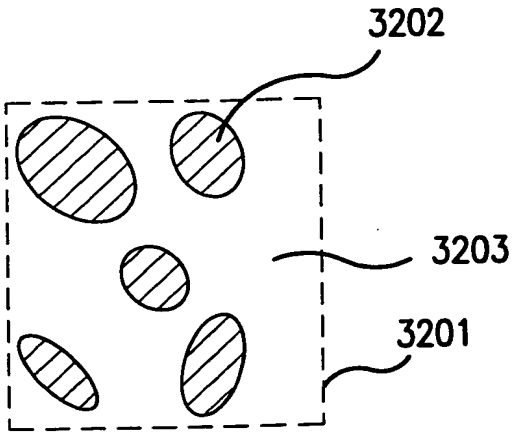


FIG. 32(d)

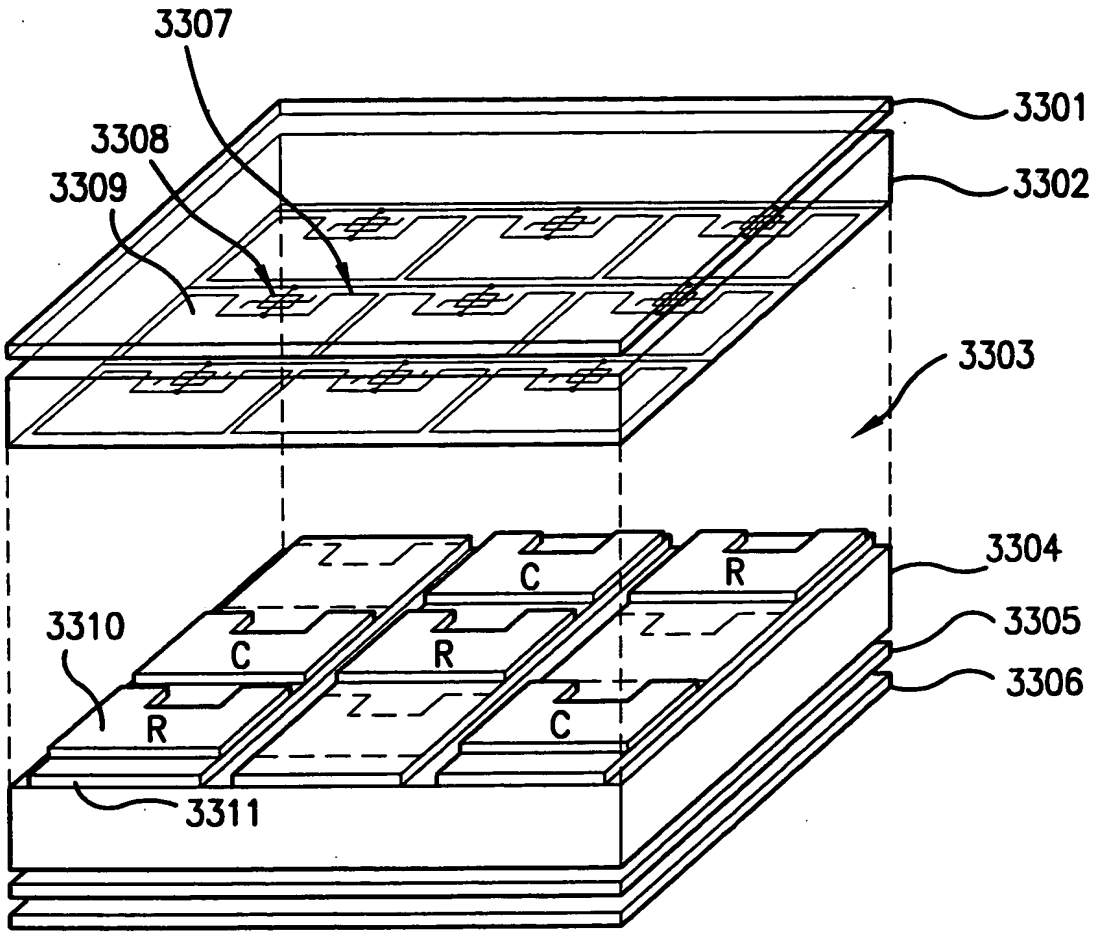

3307
3308
3309
3301
3302
3303
3304
3305
3306
3310
3311
C
R
C
R
R
C

FIG. 33

W	C	R	W	C	R
C	R	W	C	R	W
R	W	C	R	W	C
W	C	R	W	C	R
C	R	W	C	R	W
R	W	C	R	W	C

FIG.34a

W	C	R	W	C	R
C	R	W	C	R	W
R	W	C	R	W	C
W	C	R	W	C	R
C	R	W	C	R	W
R	W	C	R	W	C

FIG.34b

W	C	R	W	C	R
C	R	W	C	R	W
R	W	C	R	W	C
W	C	R	W	C	R
C	R	W	C	R	W
R	W	C	R	W	C

FIG.34c

W	C	R	W	C	R
C	R	W	C	R	W
R	W	C	R	W	C
W	C	R	W	C	R
C	R	W	C	R	W
R	W	C	R	W	C

FIG.34d

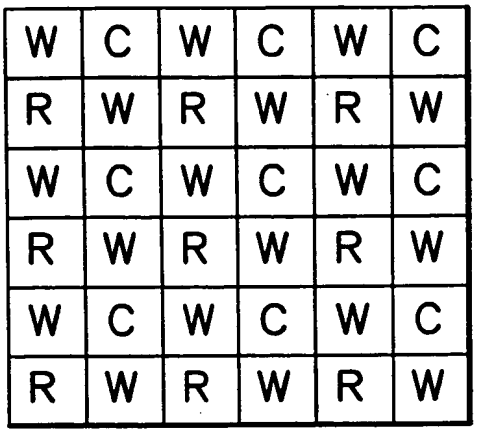


FIG.35a

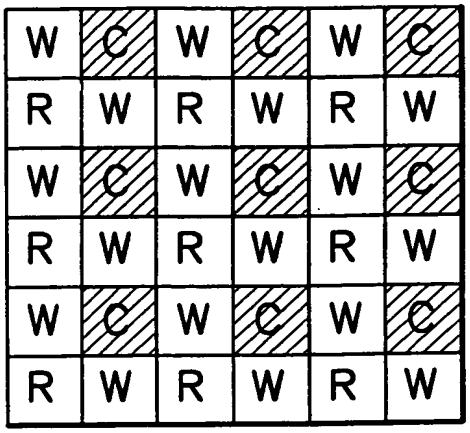


FIG.35b

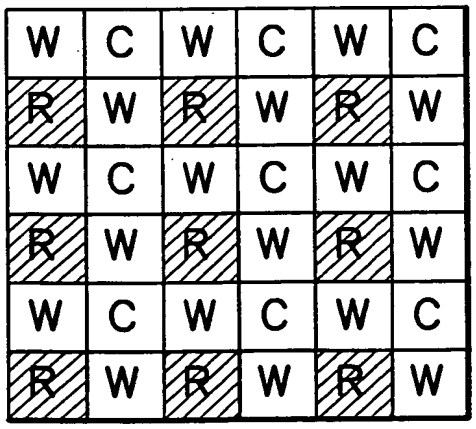


FIG.35c

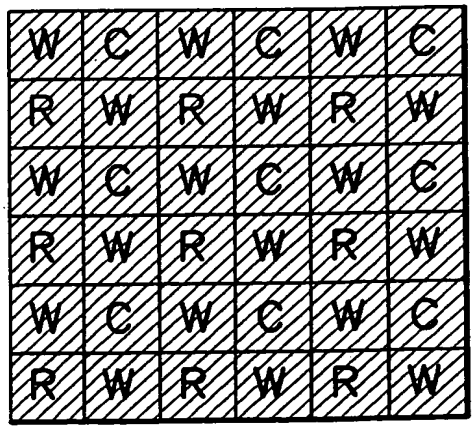


FIG.35d

W	G	W	R	W	B
R	W	B	W	G	W
W	G	W	R	W	B
R	W	B	W	G	W
W	G	W	R	W	B
R	W	B	W	G	W

FIG.36a

W	G	W	R	W	B
R	W	B	W	G	W
W	G	W	R	W	B
R	W	B	W	G	W
W	G	W	R	W	B
R	W	B	W	G	W

FIG.36b

W	G	W	R	W	B
R	W	B	W	G	W
W	G	W	R	W	B
R	W	B	W	G	W
W	G	W	R	W	B
R	W	B	W	G	W

FIG.36c

W	G	W	R	W	B
R	W	B	W	G	W
W	G	W	R	W	B
R	W	B	W	G	W
W	G	W	R	W	B
R	W	B	W	G	W

FIG.36d

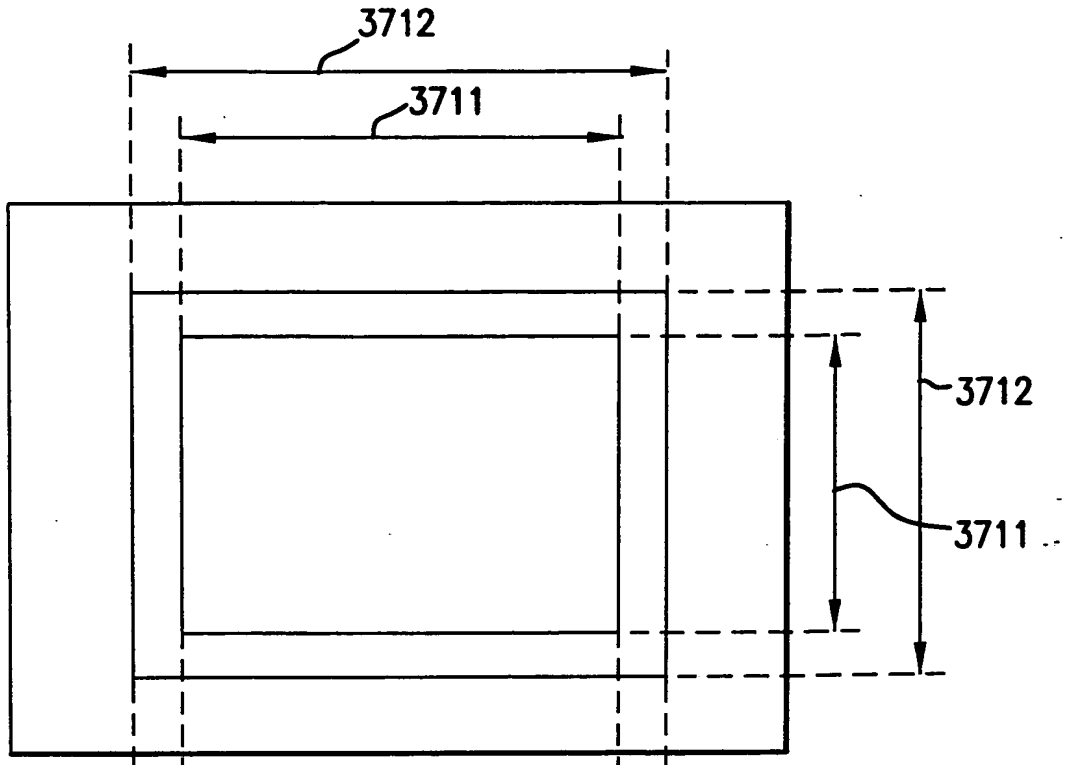


FIG.37a

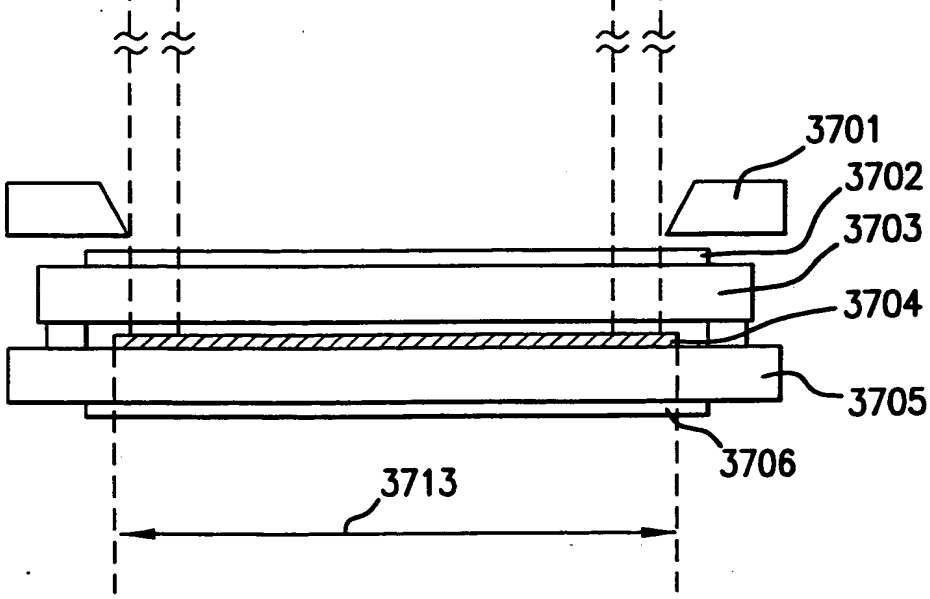


FIG.37b

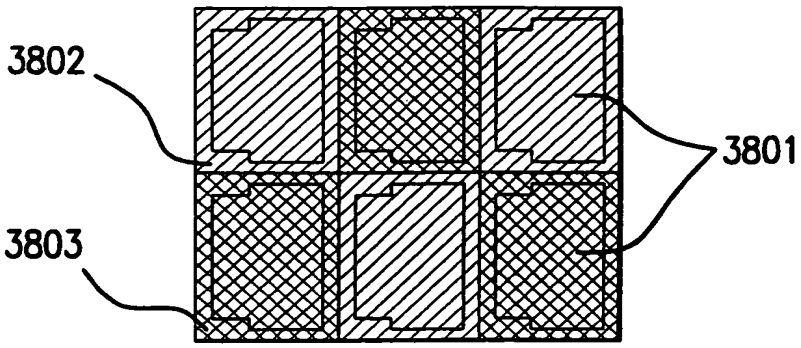


FIG.38a

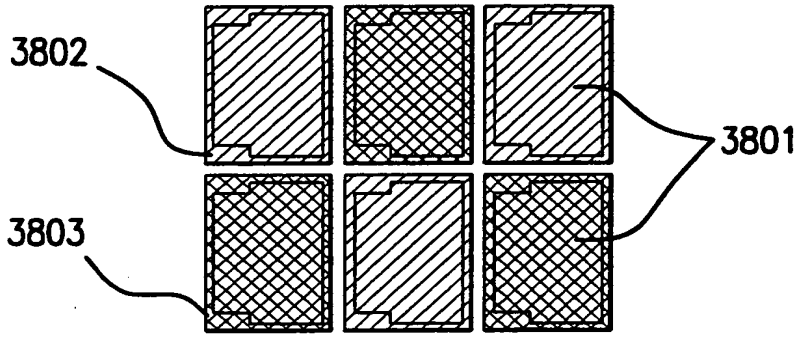


FIG.38b

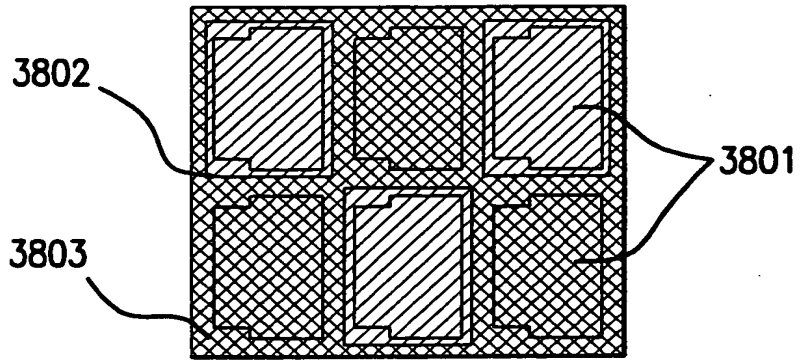


FIG.38c

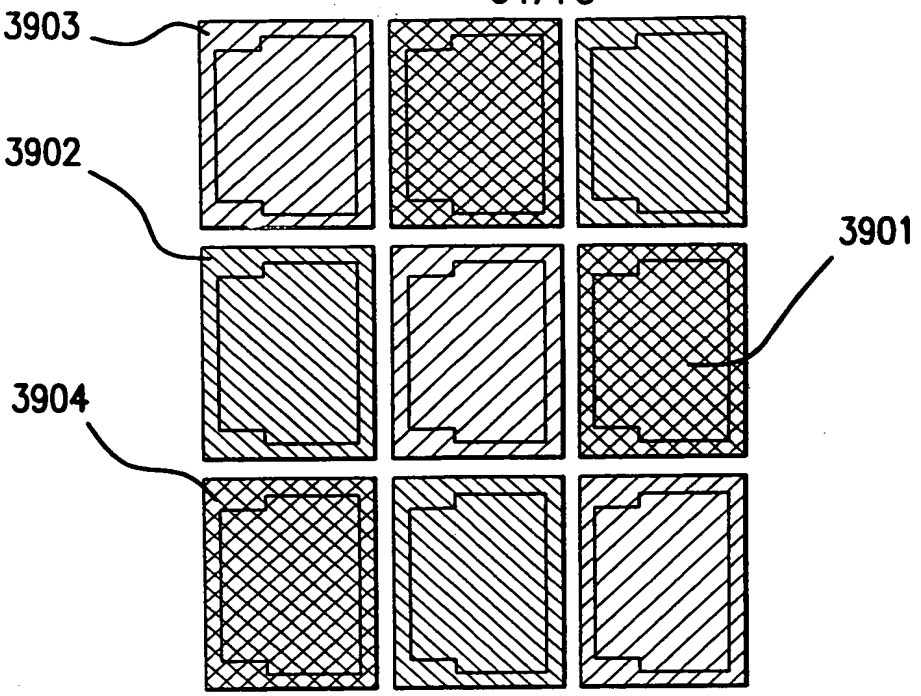


FIG.39a

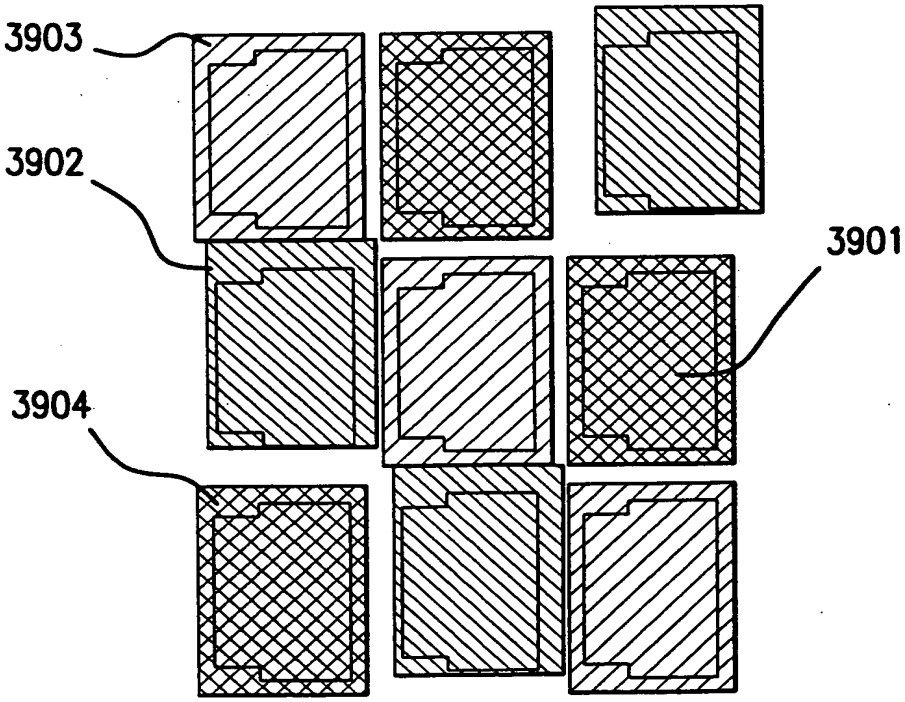


FIG.39b

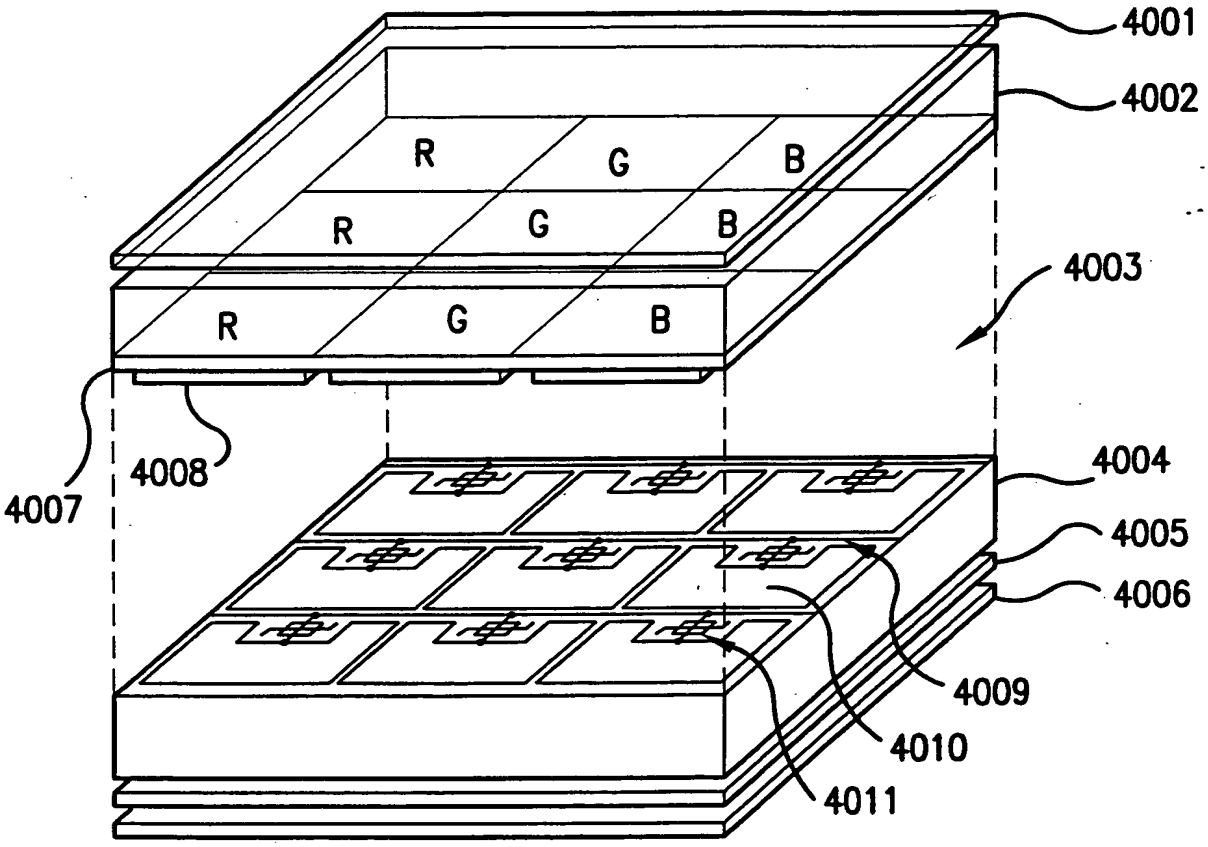

4001
4002
R
G
B
R
G
B
R
G
B
4003
4007
4008
4004
4005
4006
4009
4010
4011

FIG. 40

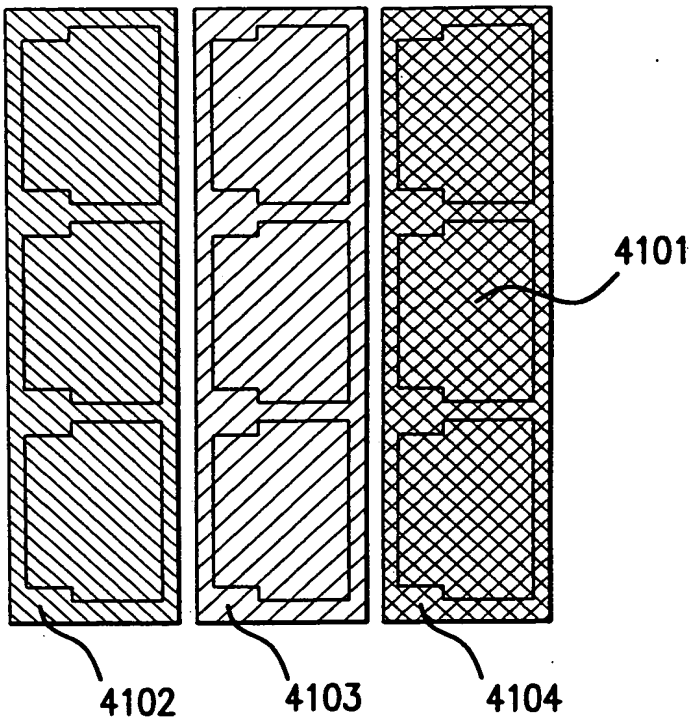


FIG.41a

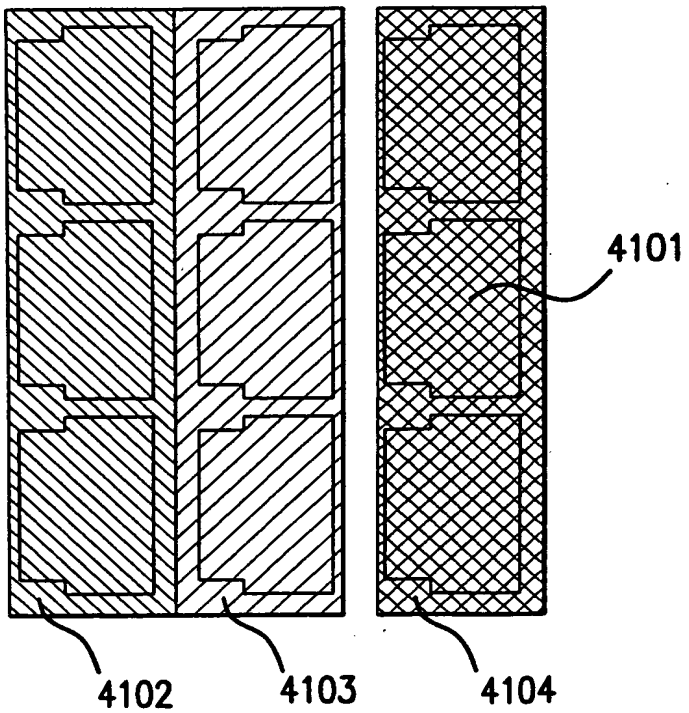


FIG.41b

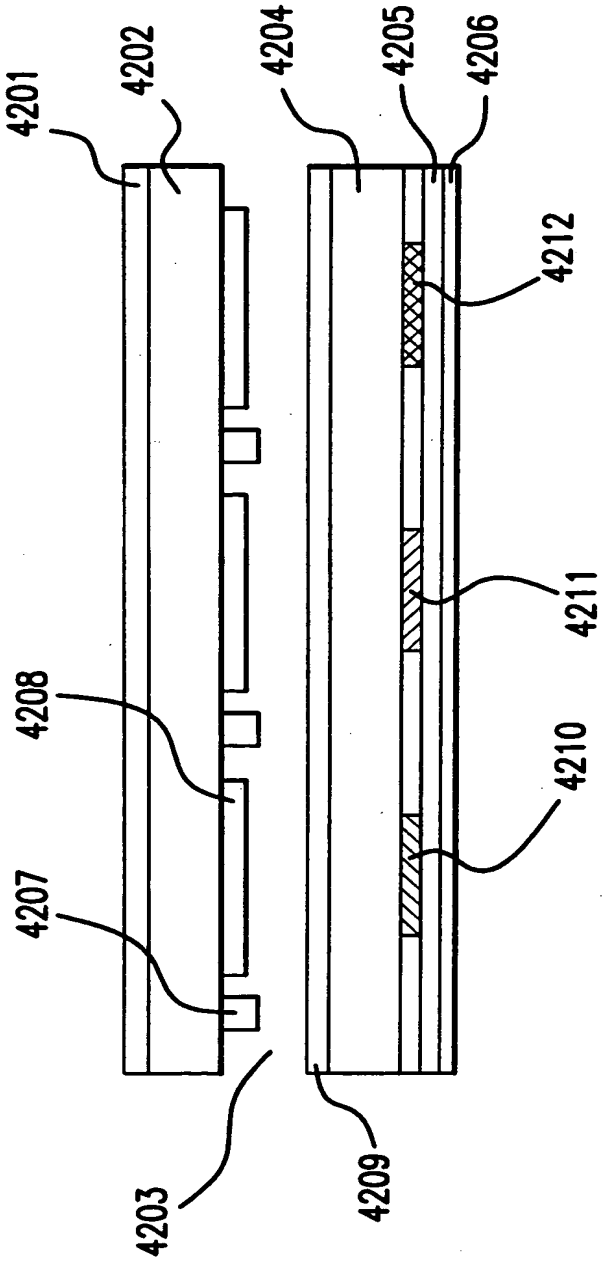


FIG.42

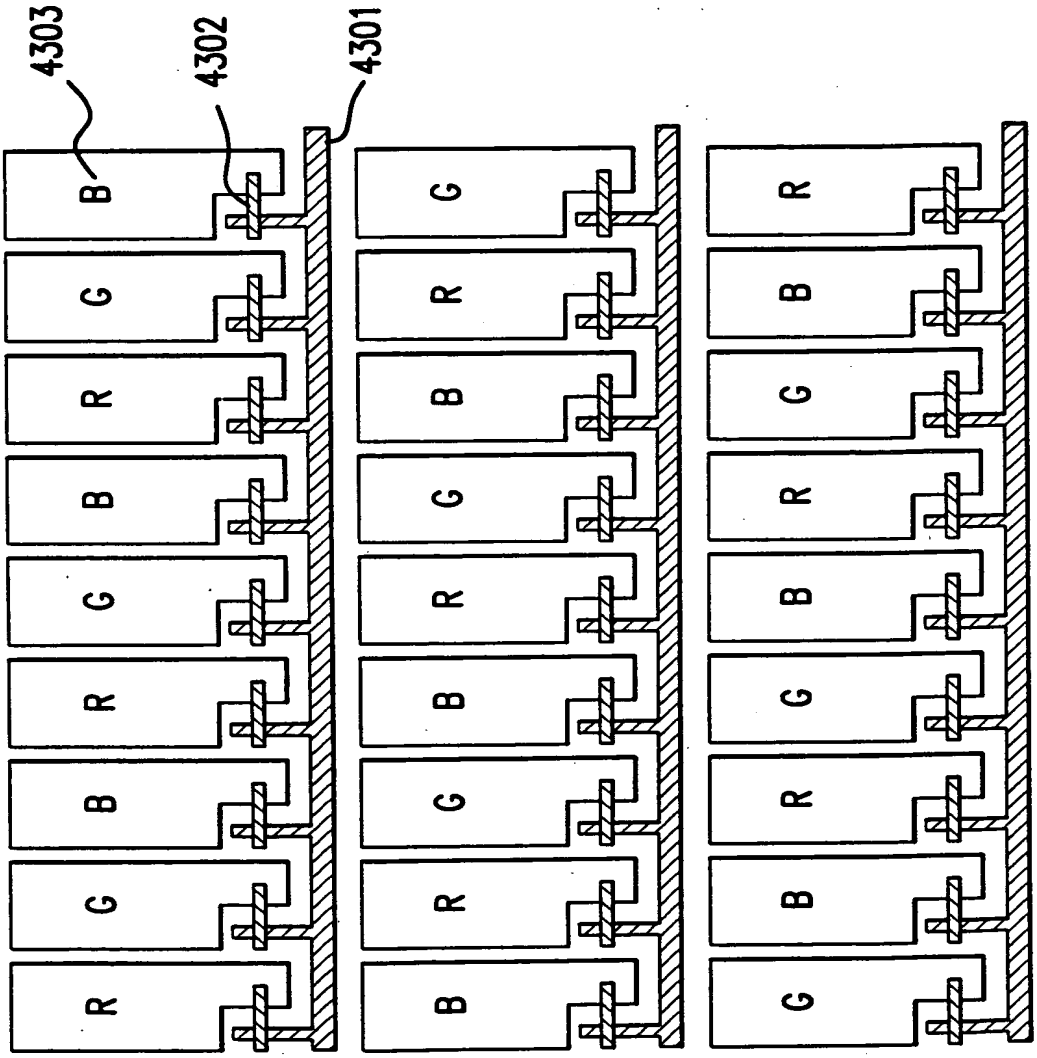


FIG.43

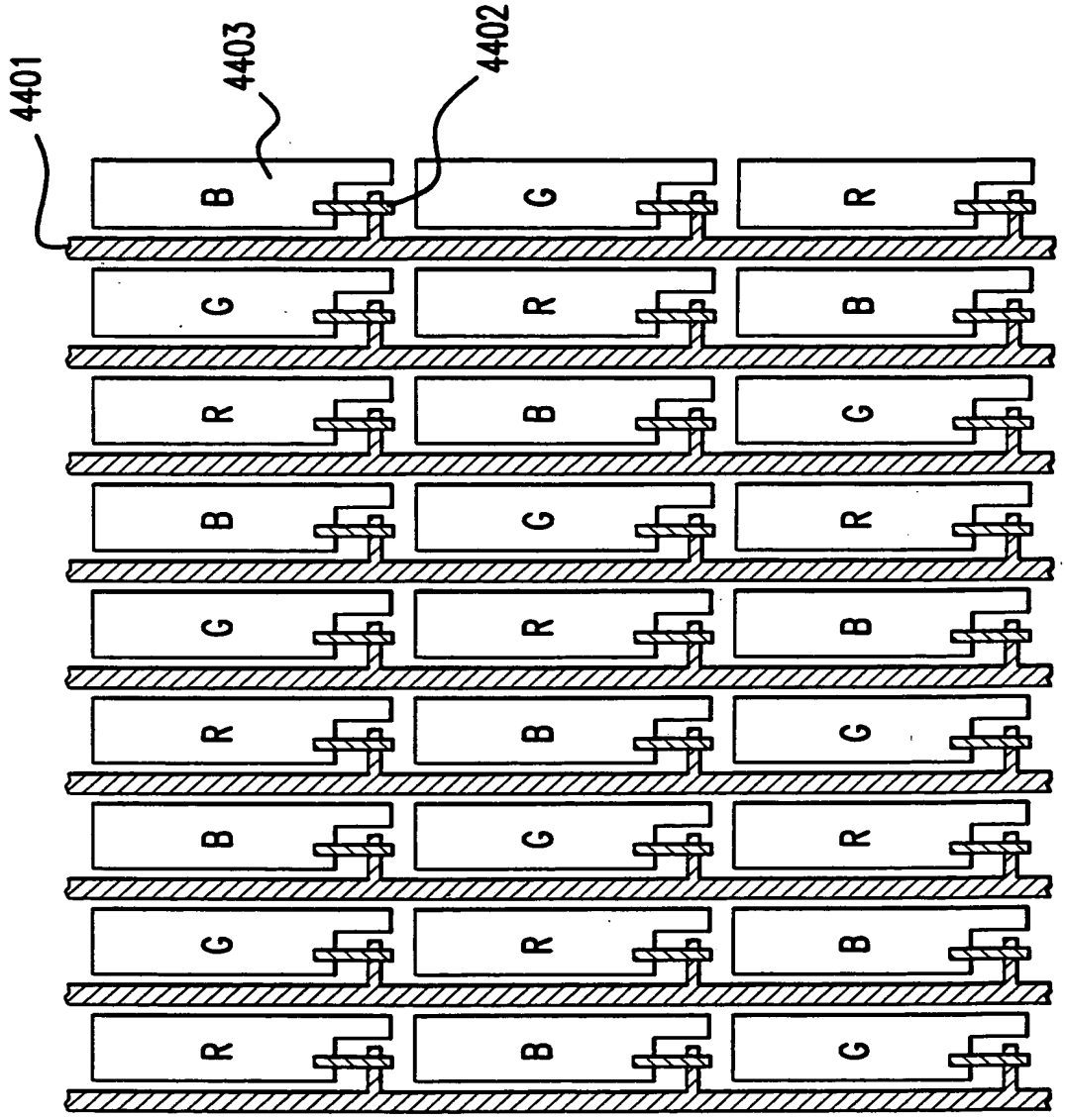


FIG.44

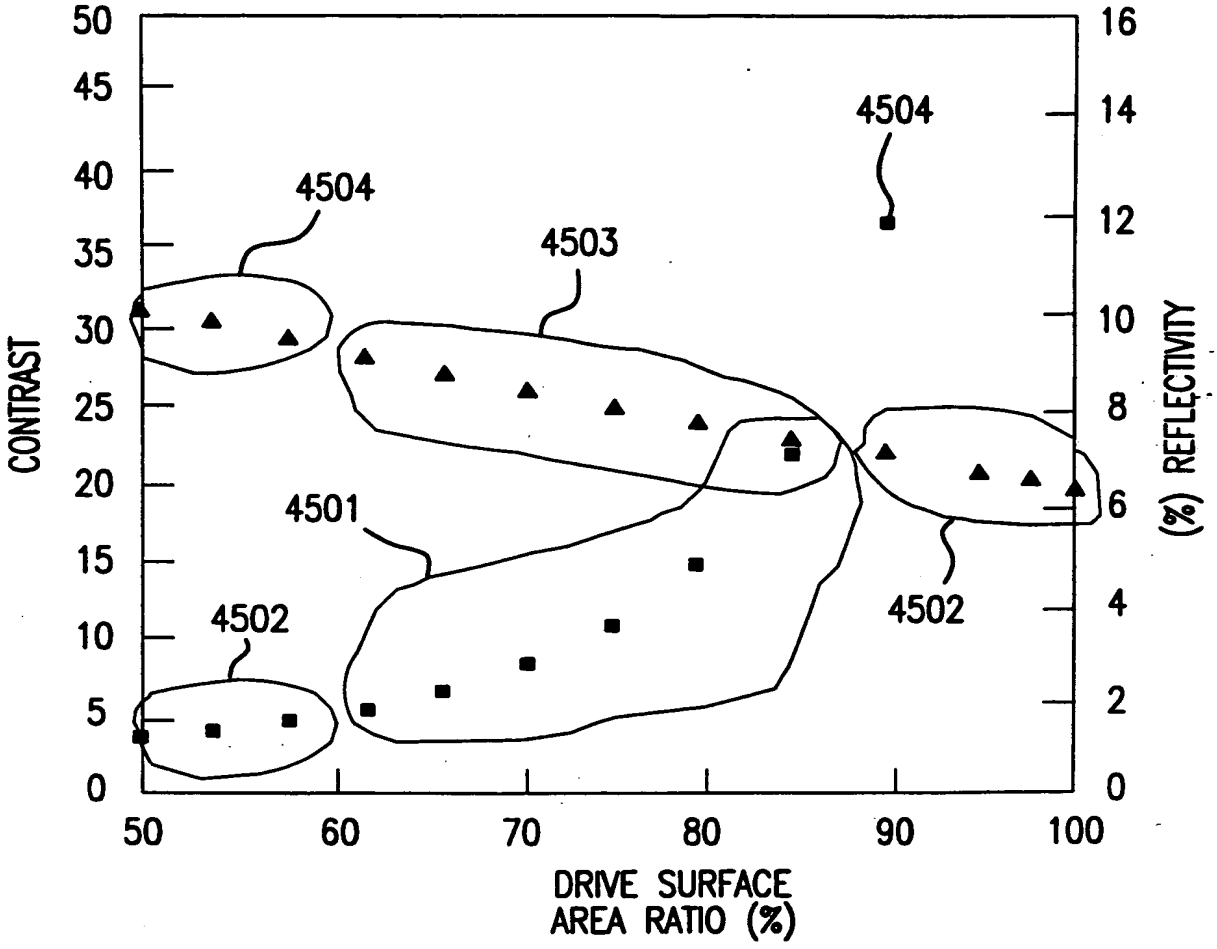

50
45
40
35
30
25
20
15
10
5
0
CONTRAST
16
14
12
10
8
6
4
2
0
(%) REFLECTIVITY
4504
4504
4503
4501
4502
4502
50
60
70
80
90
100
DRIVE SURFACE
AREA RATIO (%)

FIG.45

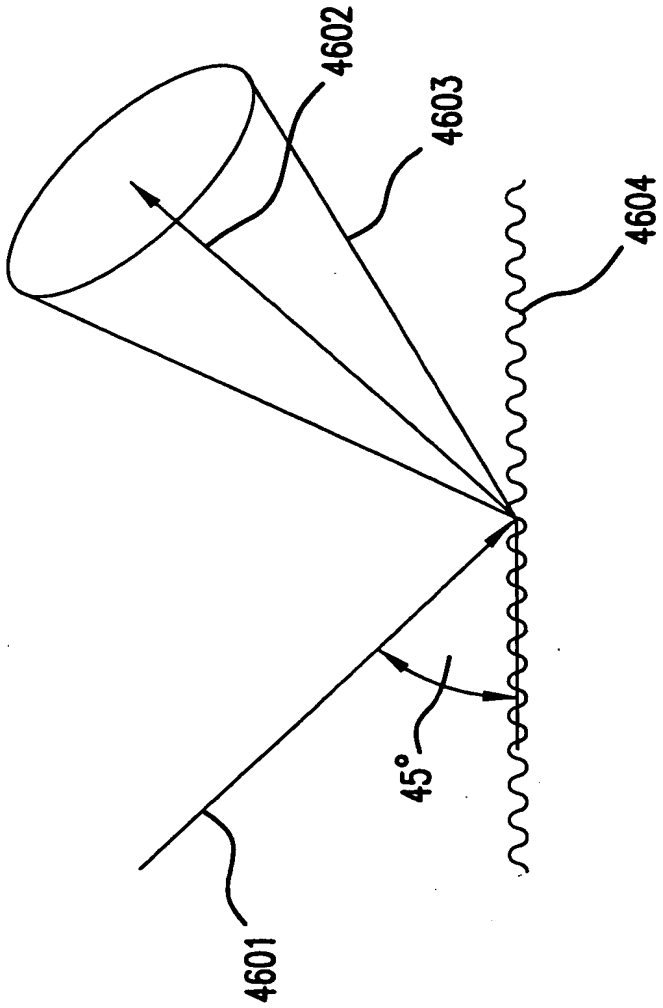


FIG.46

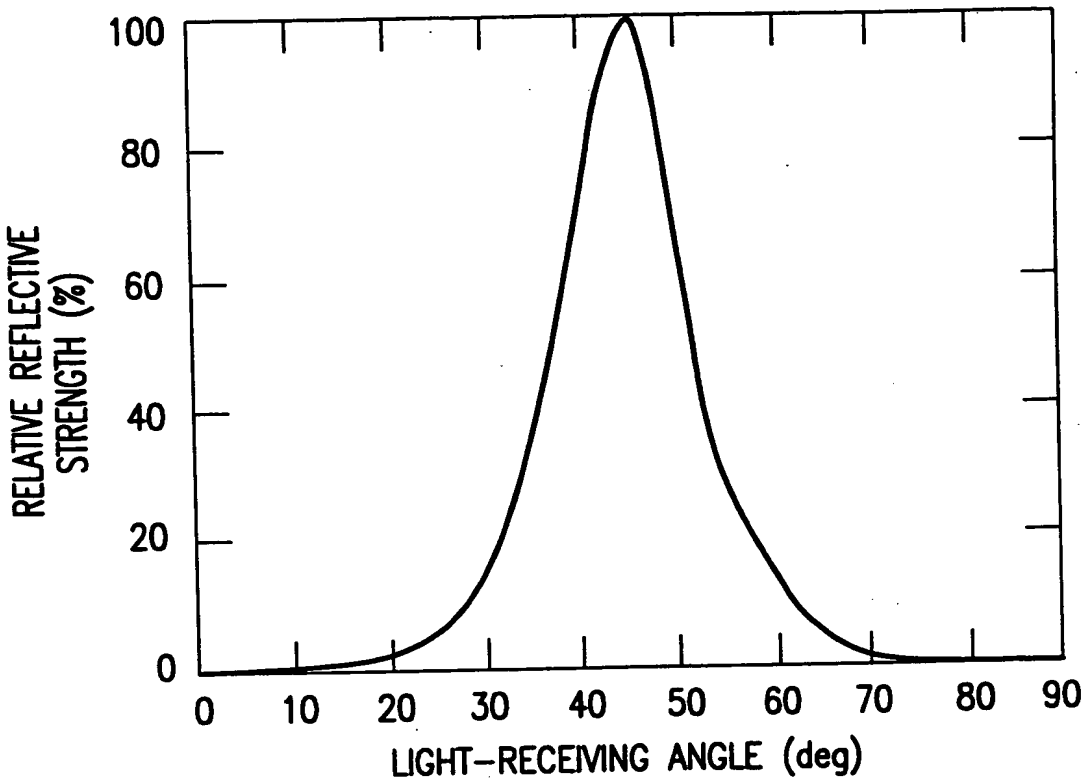

100
80
60
40
20
0
RELATIVE REFLECTIVE STRENGTH (%)
0
10
20
30
40
50
60
70
80
90
LIGHT-RECEIVING ANGLE (deg)

FIG.47

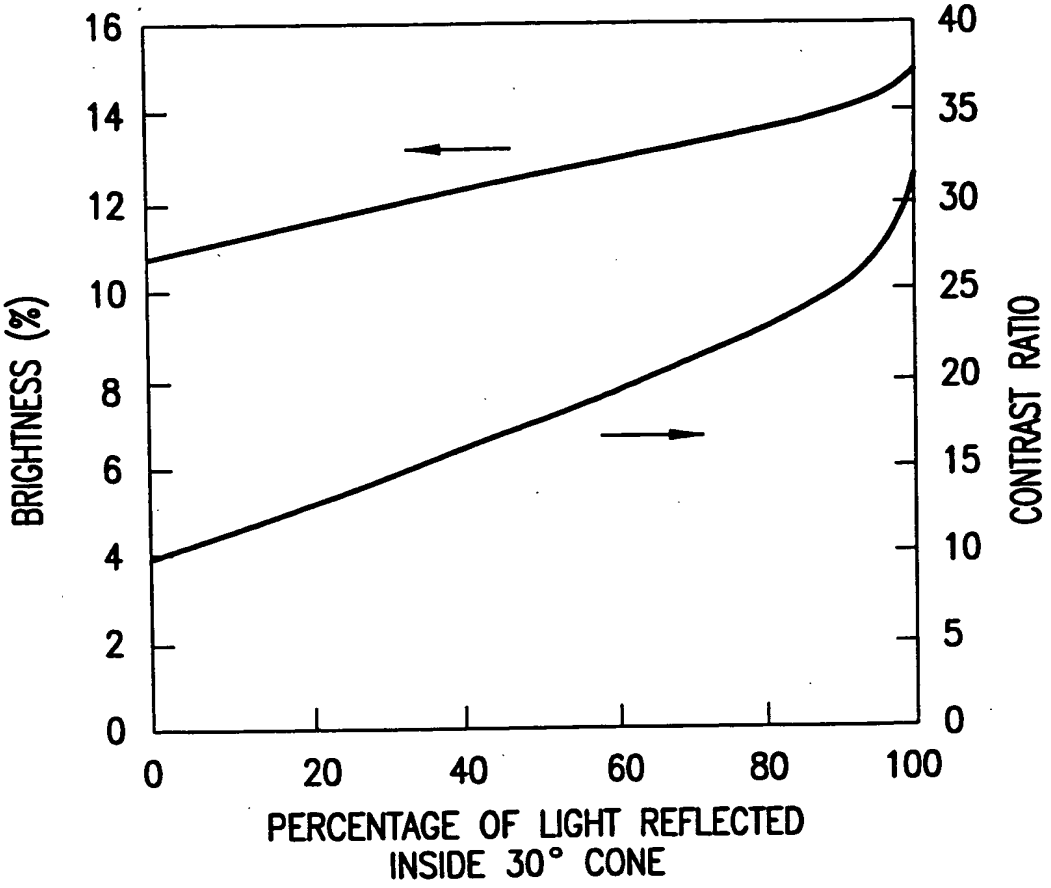

16
14
12
10
8
6
4
2
0
BRIGHTNESS (%)
40
35
30
25
20
15
10
5
0
CONTRAST RATIO
0
20
40
60
80
100
PERCENTAGE OF LIGHT REFLECTED
INSIDE 30° CONE

FIG.48

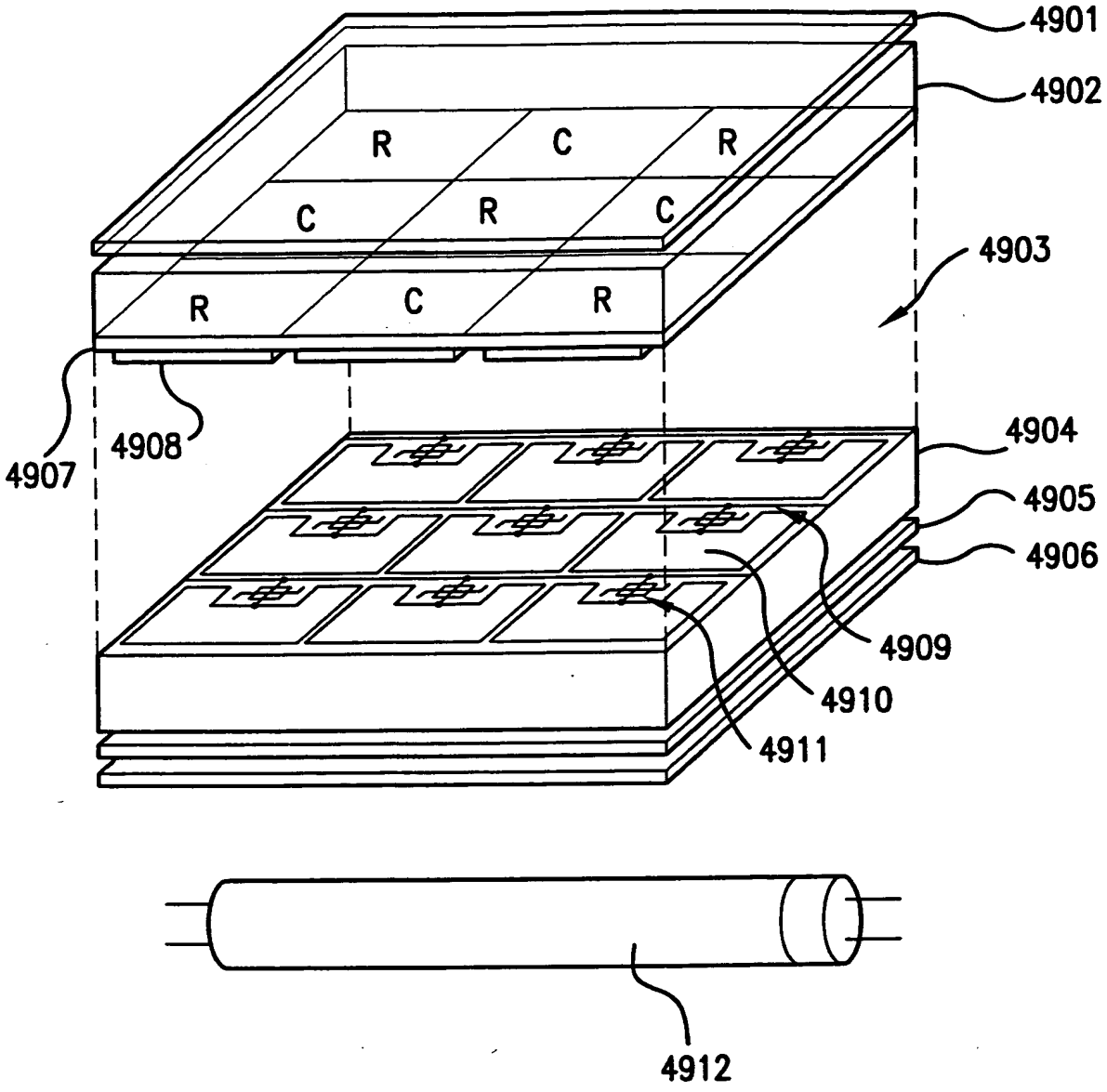

4901
4902
R
C
R
C
R
C
R
C
R
4903
4907
4908
4904
4905
4906
4909
4910
4911
4912

FIG. 49

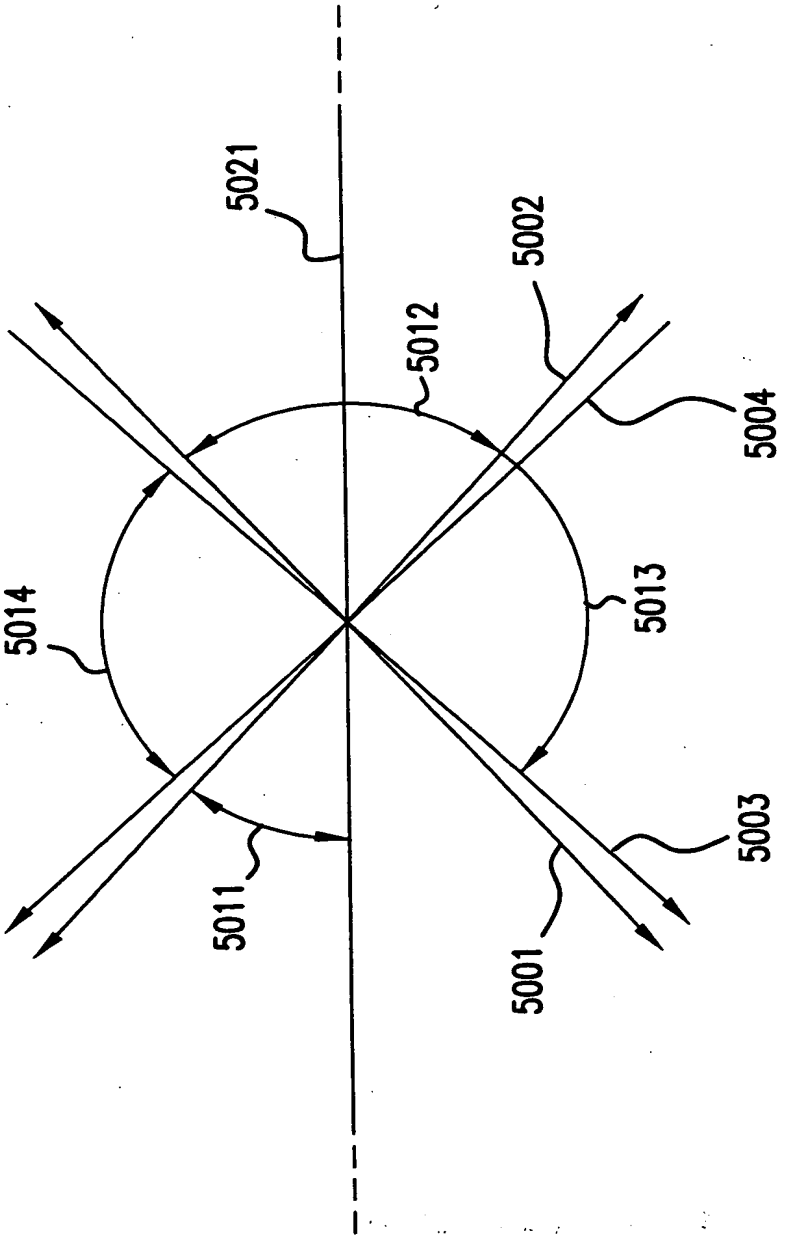


FIG.50

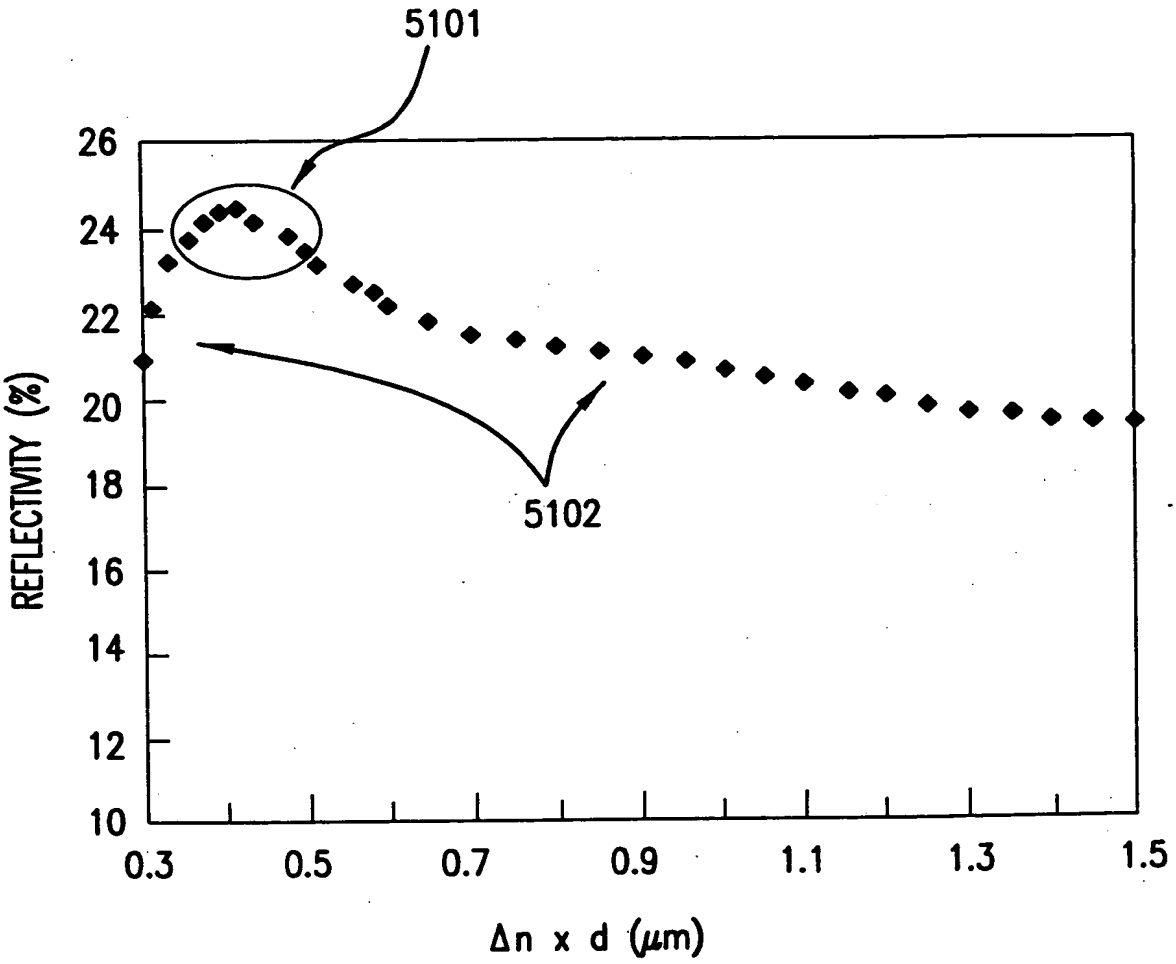

5101
5102
26
24
22
20
18
16
14
12
10
REFLECTIVITY (%)
0.3
0.5
0.7
0.9
1.1
1.3
1.5
Δn x d (μm)

FIG.51

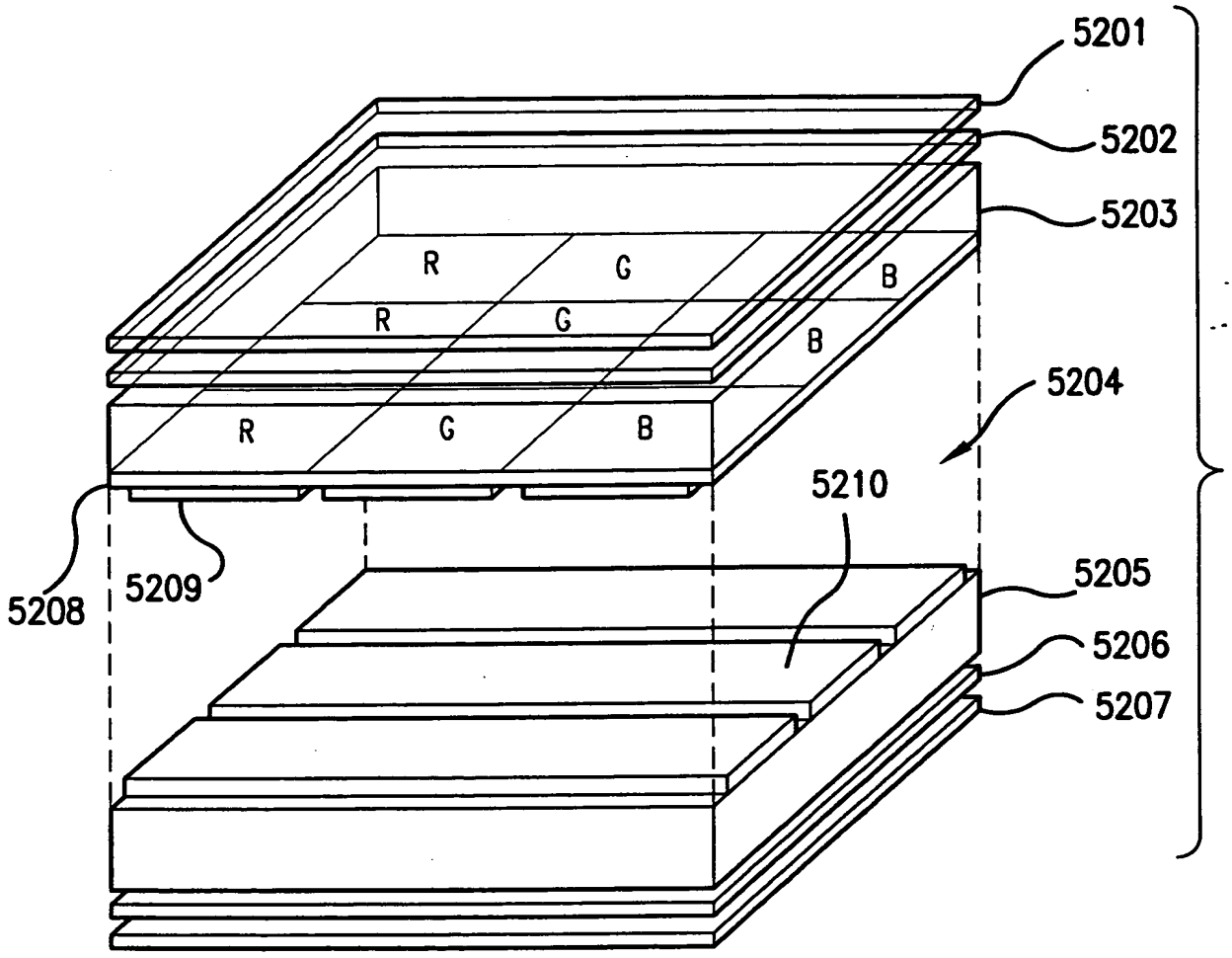


FIG. 52

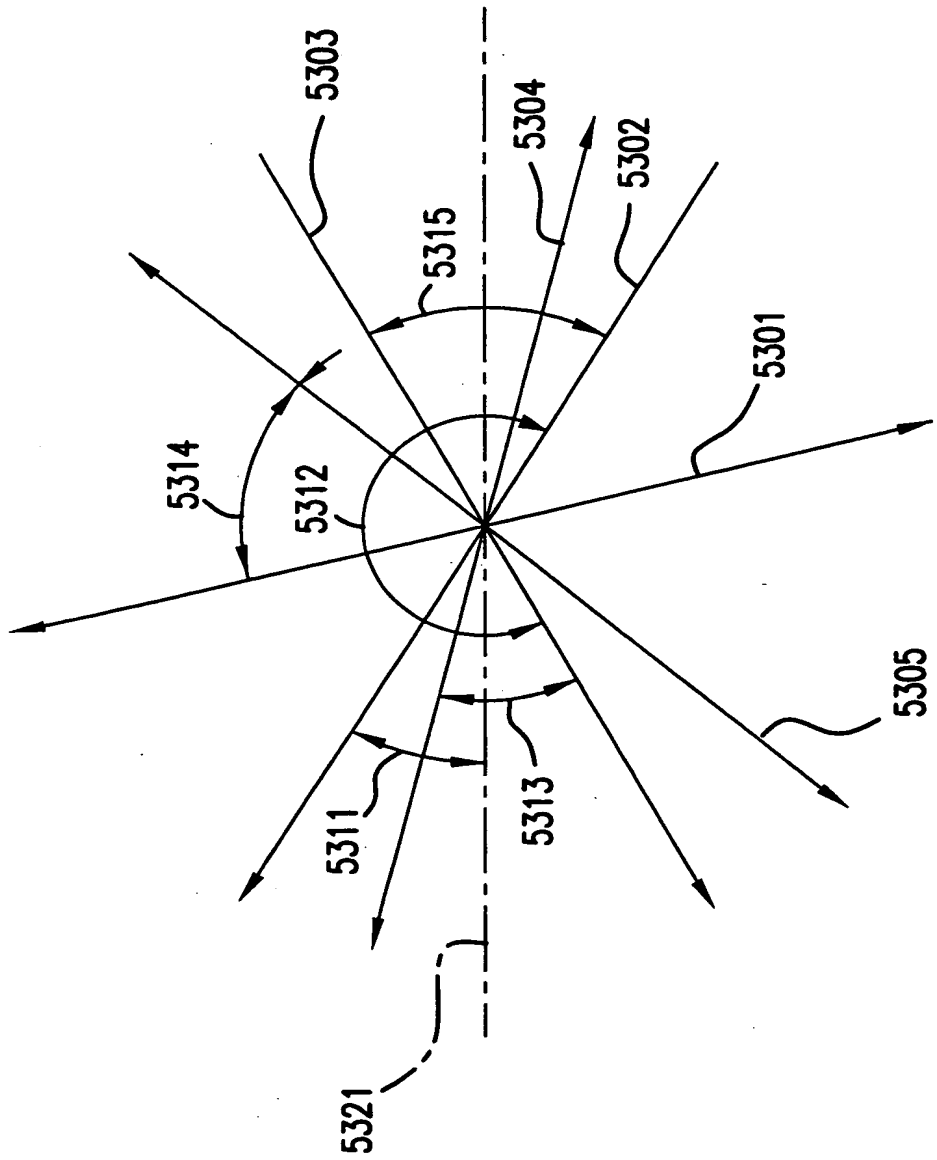


FIG.53

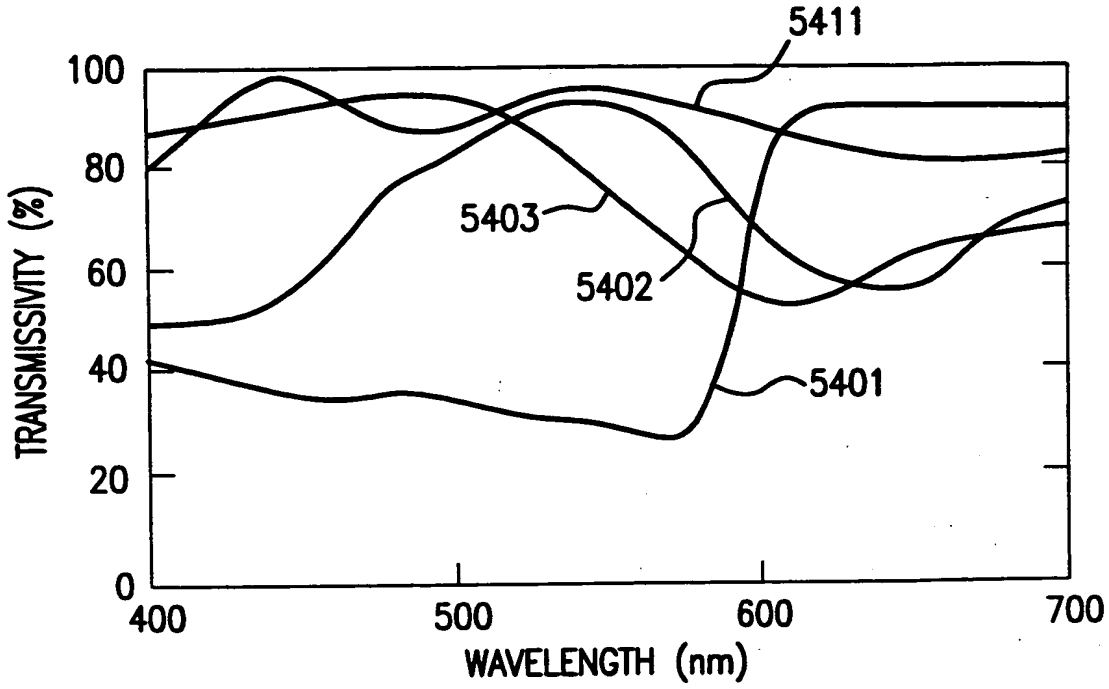

5411
100
80
60
40
20
0
TRANSMISSIVITY (%)
5403
5402
5401
400
500
600
700
WAVELENGTH (nm)

FIG.54

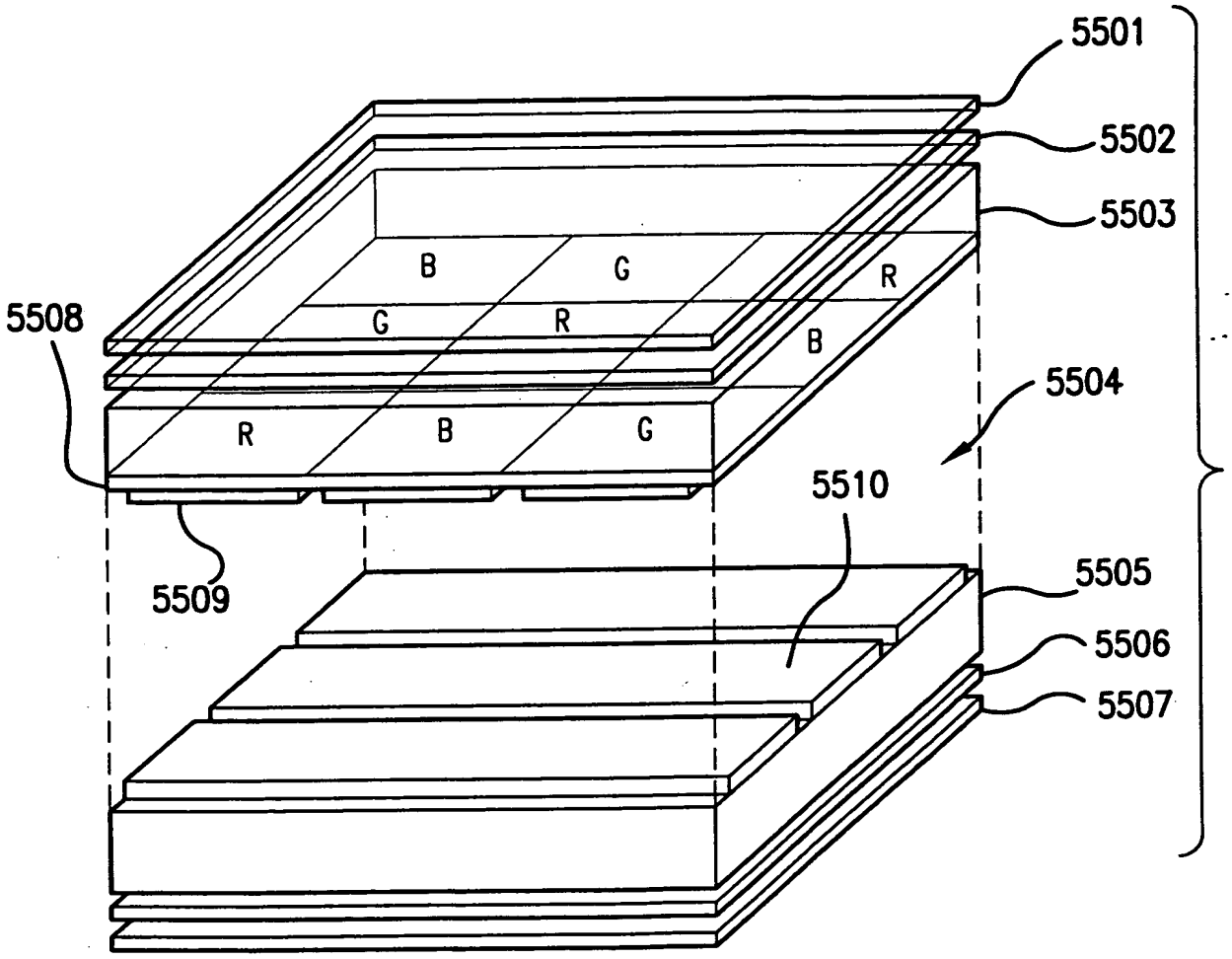


FIG. 55

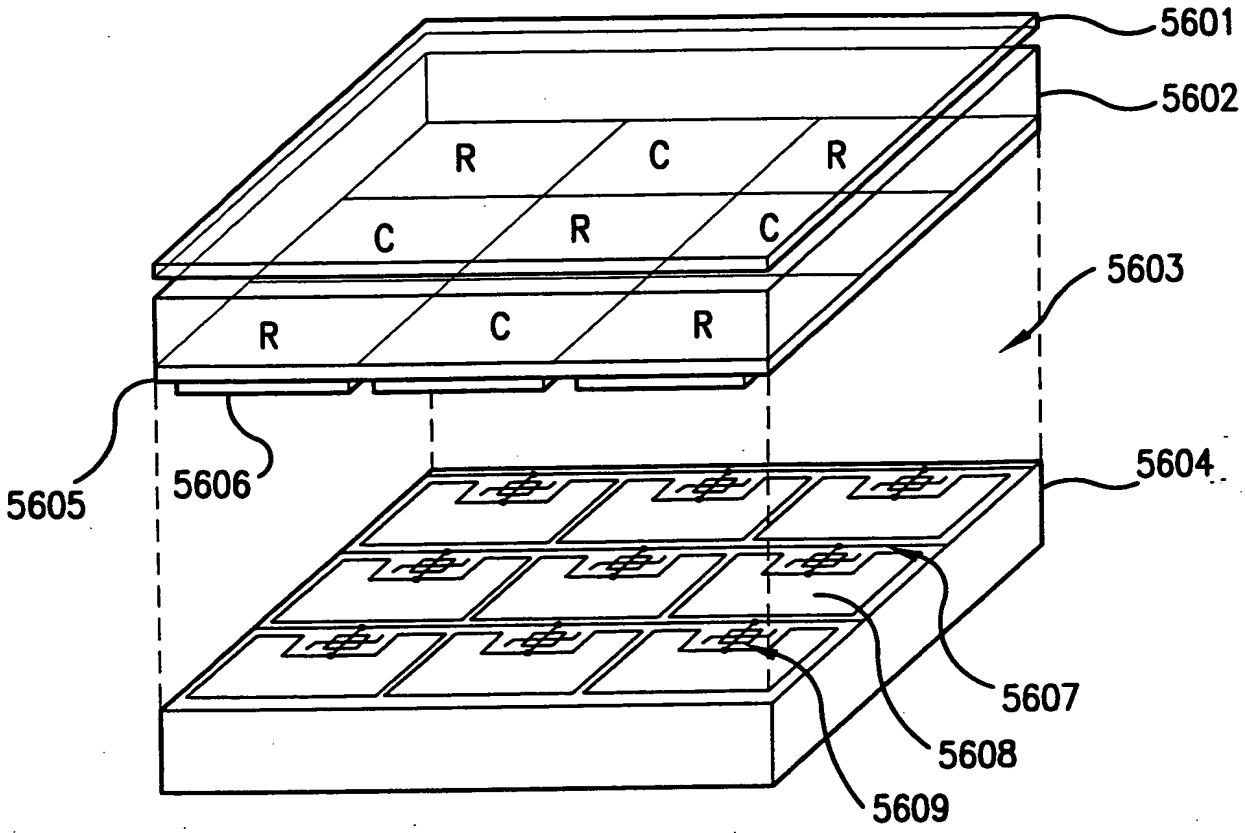


FIG. 56

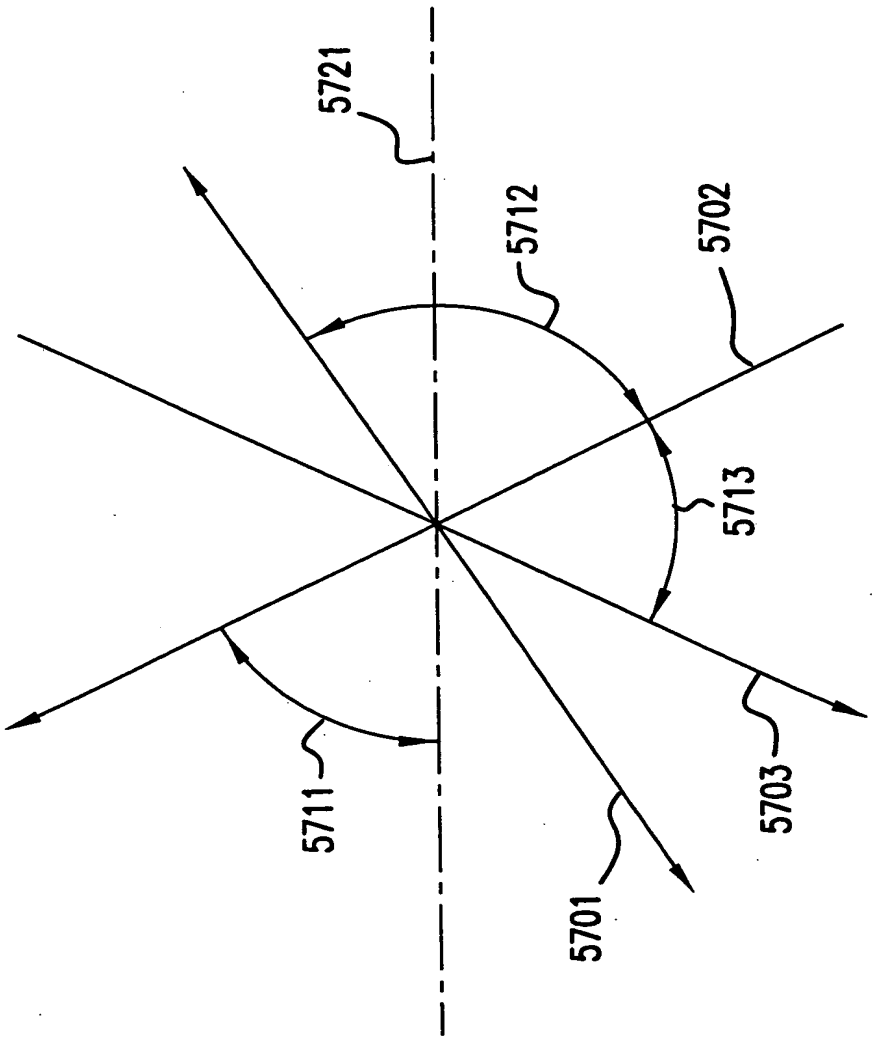


FIG.57

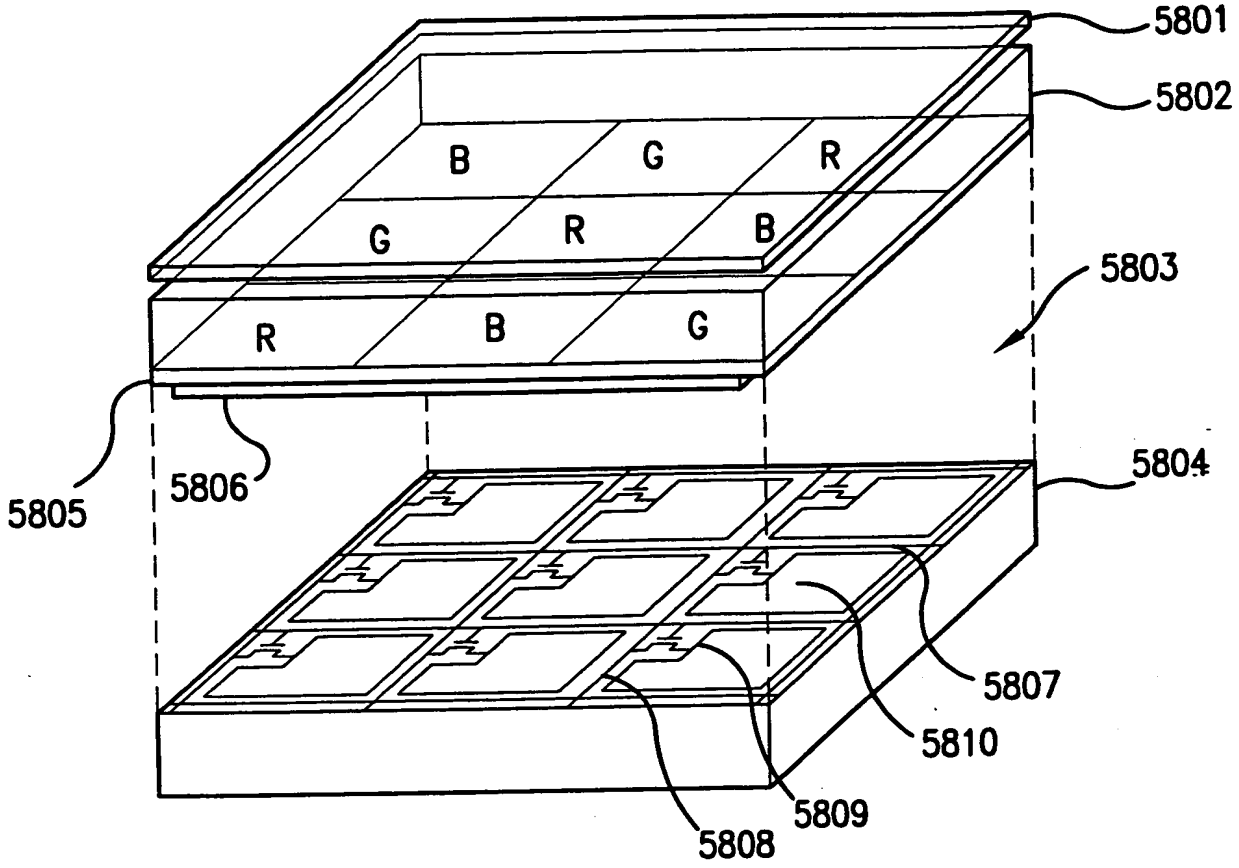


FIG. 58

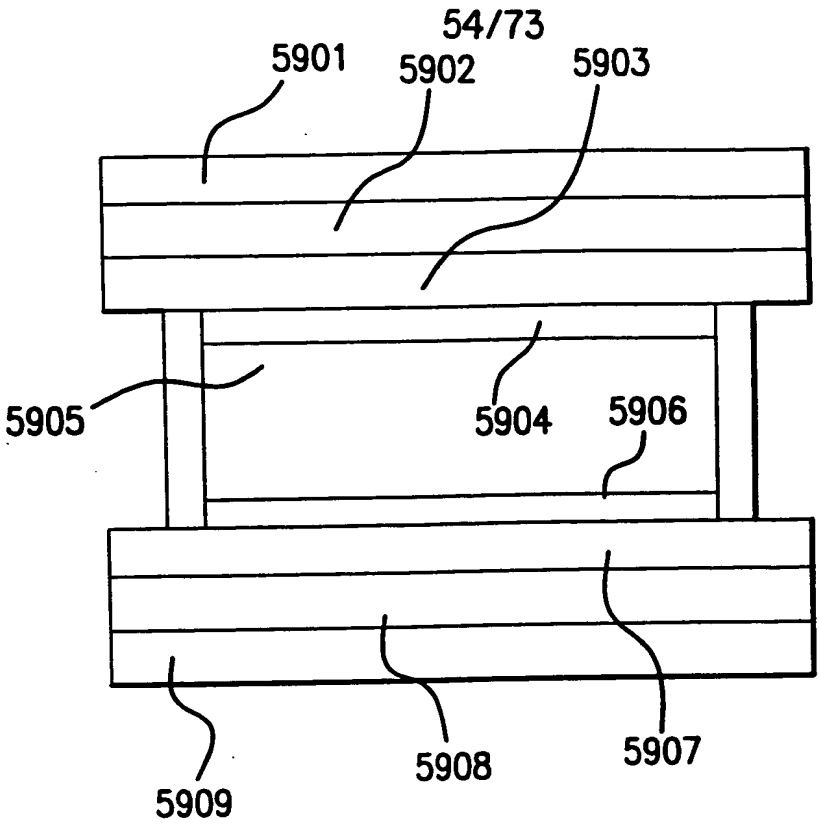

5901
5902
5903
5905
5904
5906
5909
5908
5907

FIG.59

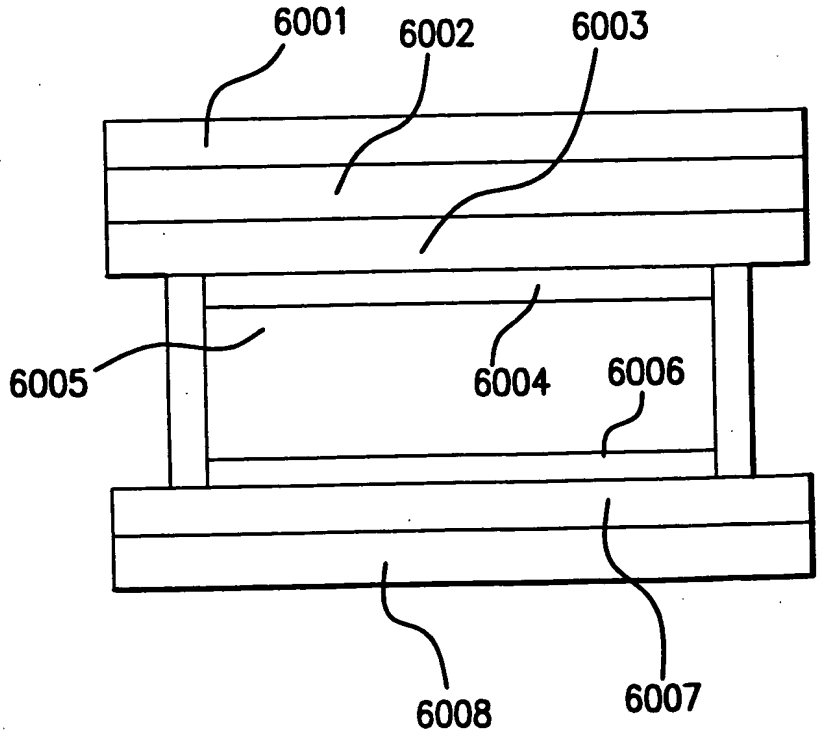

6001
6002
6003
6005
6004
6006
6008
6007

FIG.60

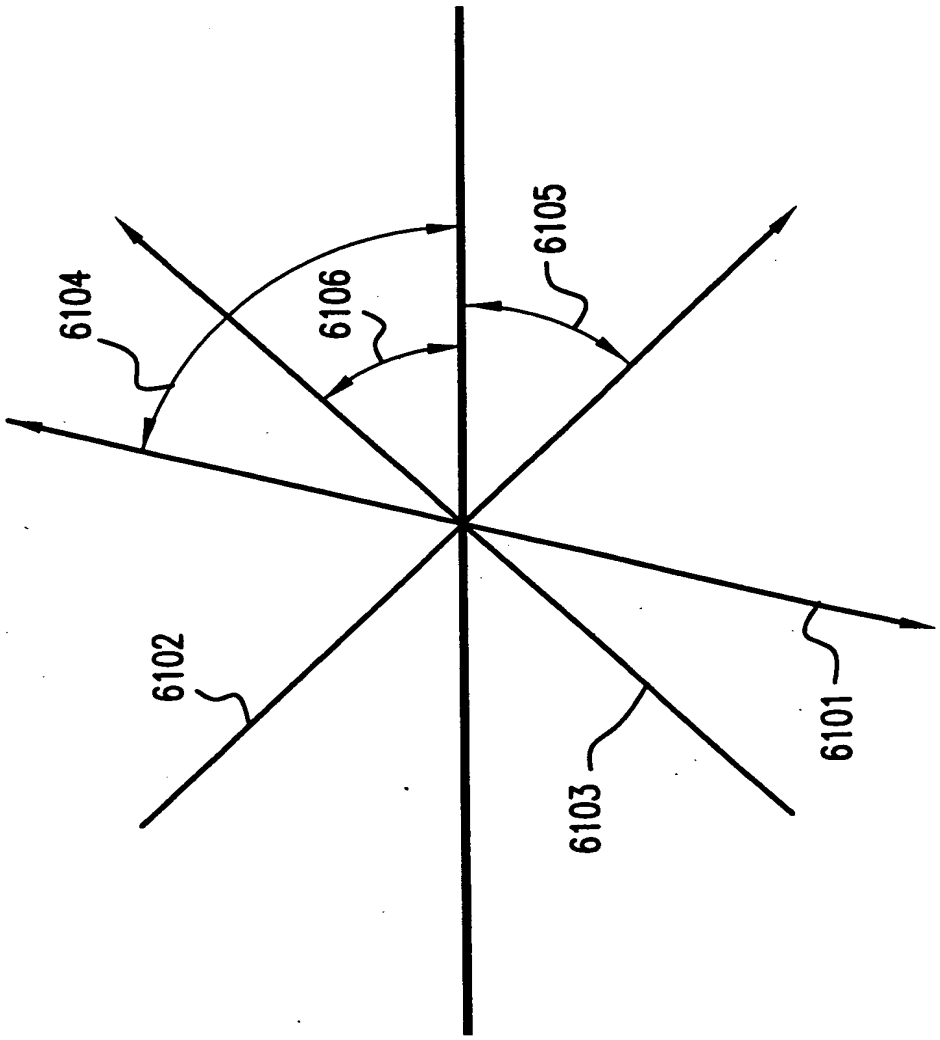


FIG.61

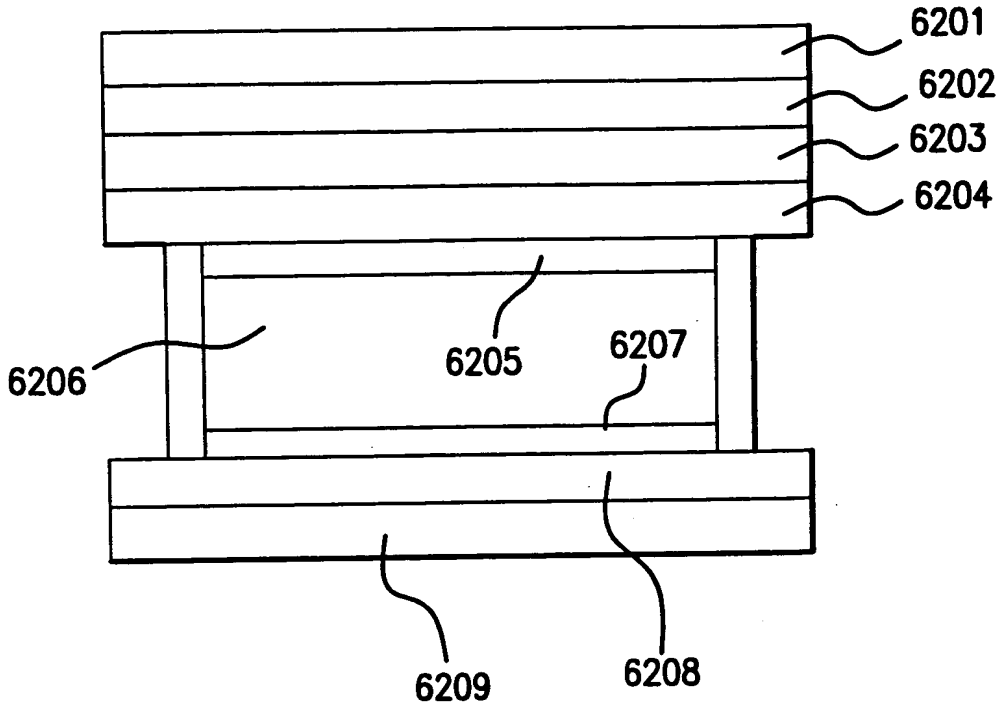


FIG.62

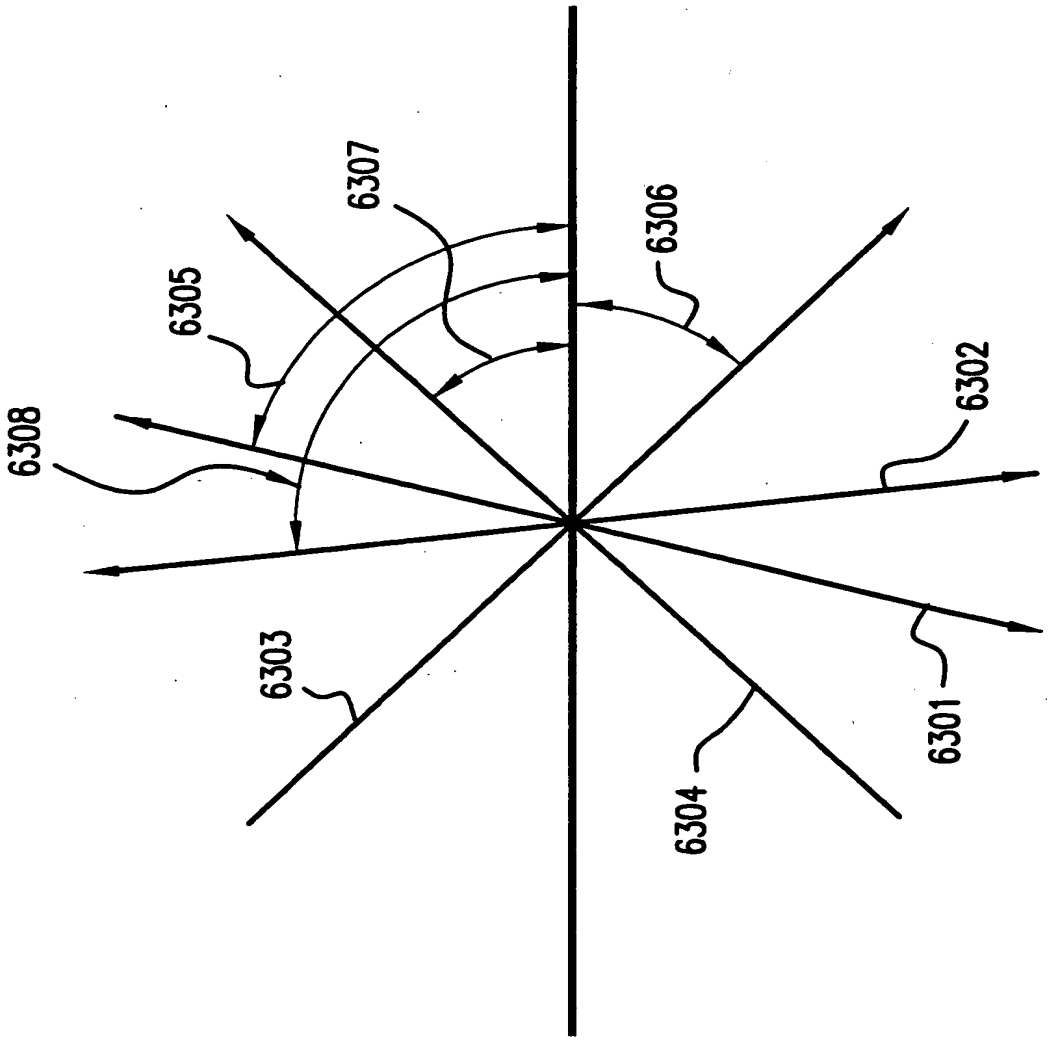


FIG.63

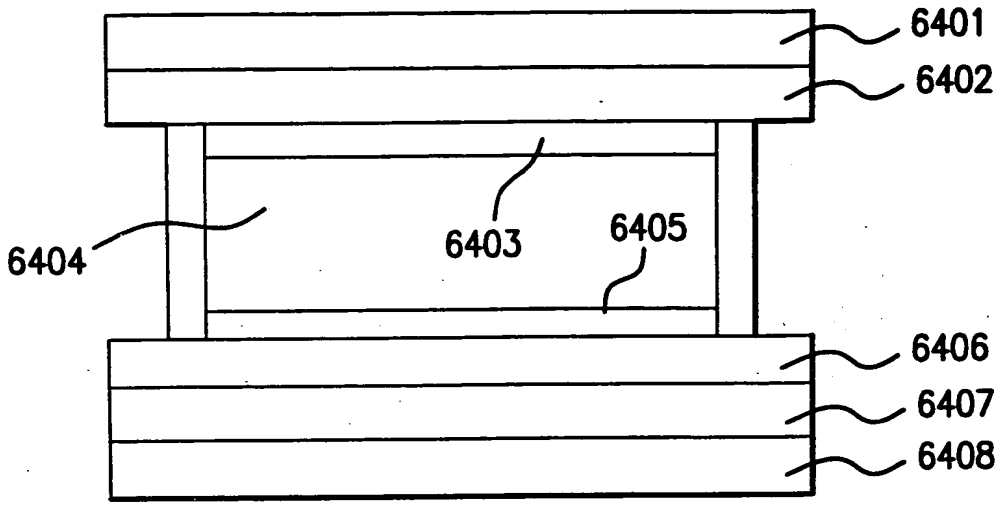


FIG.64

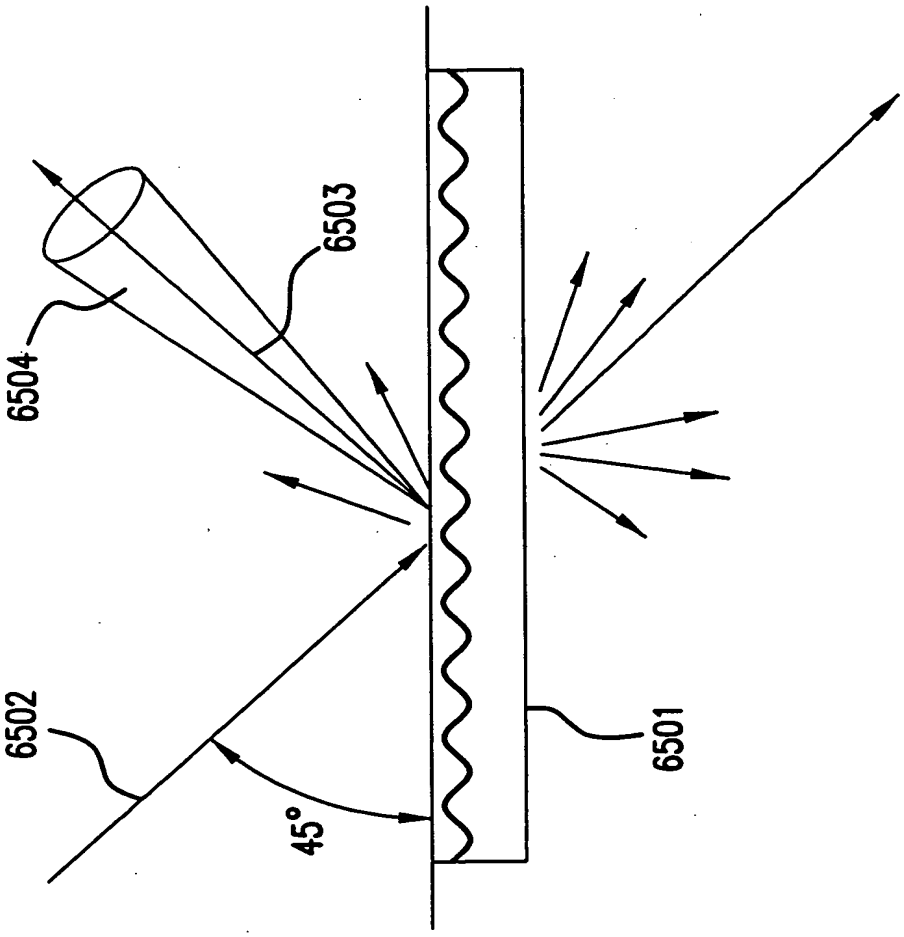


FIG.65

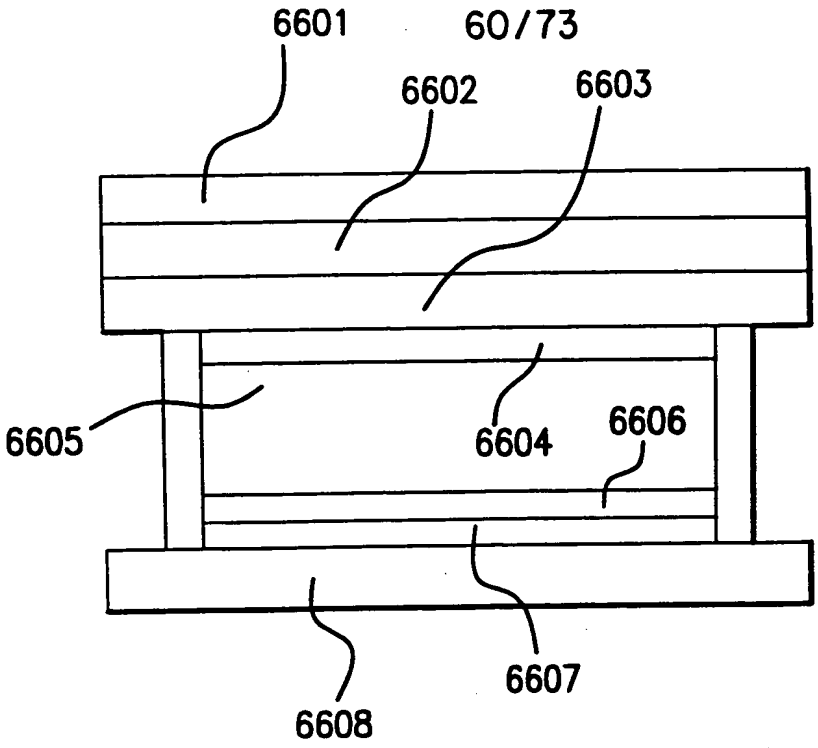

6601
6602
6603
6605
6604
6606
6607
6608

FIG.66

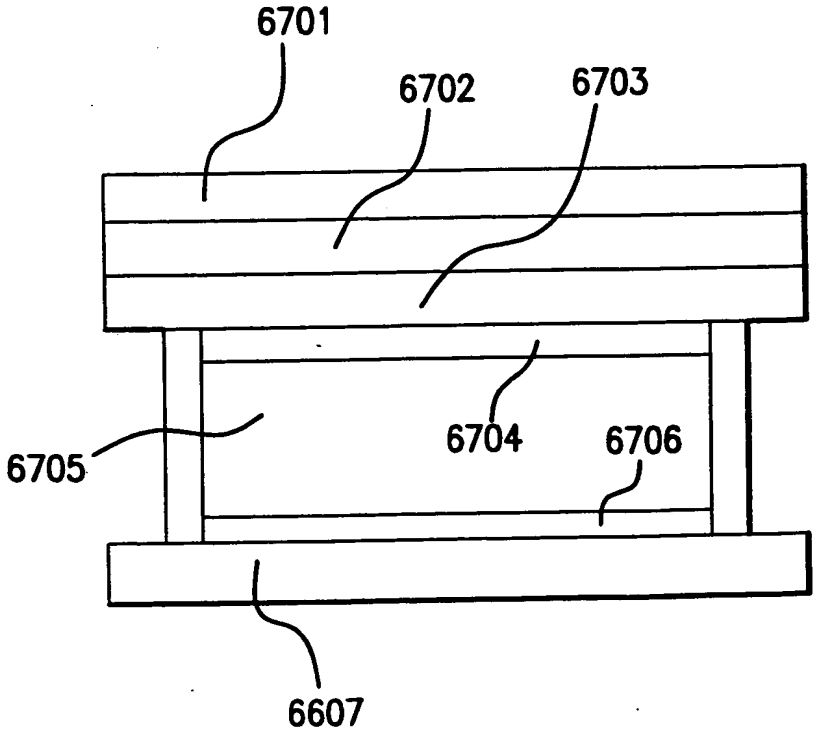

6701
6702
6703
6705
6704
6706
6607

FIG.67

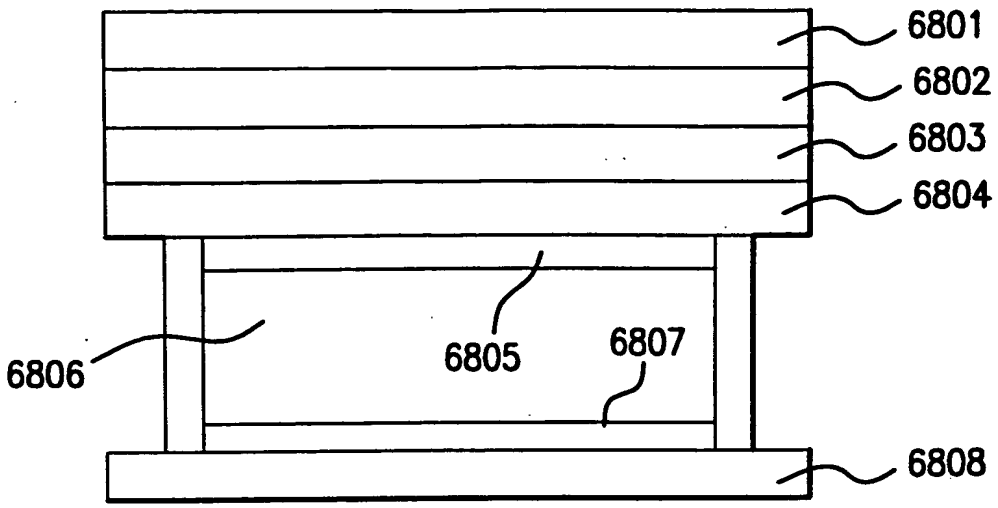


FIG.68

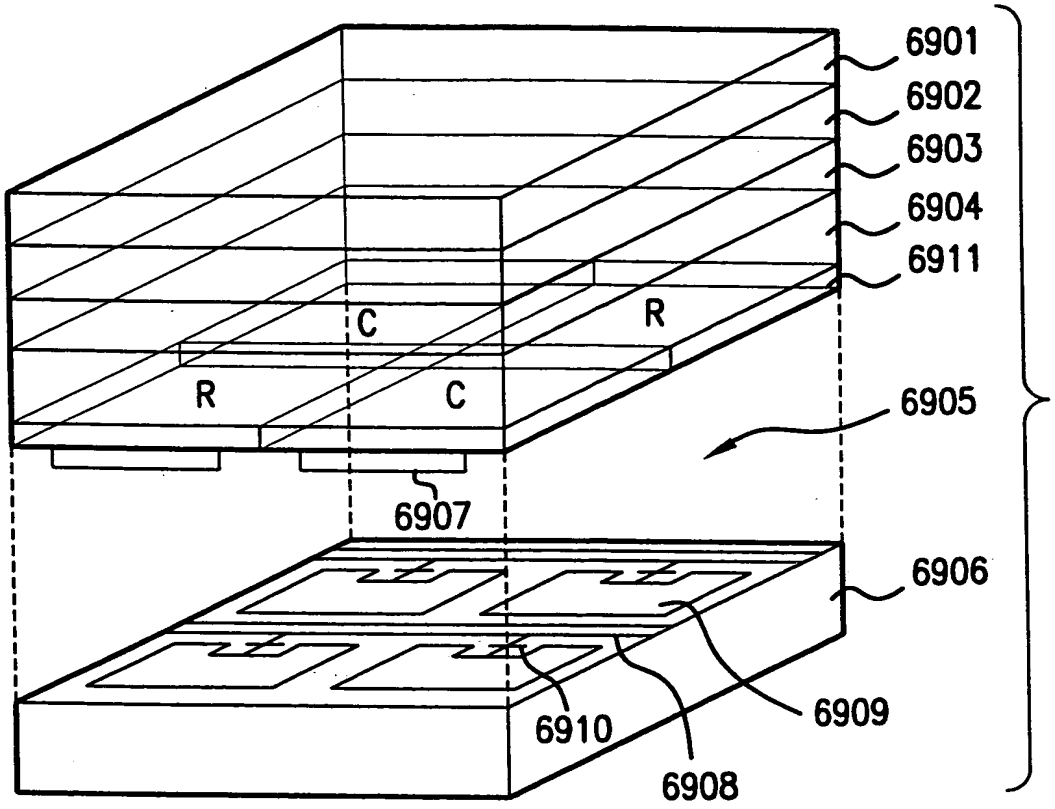


FIG.69

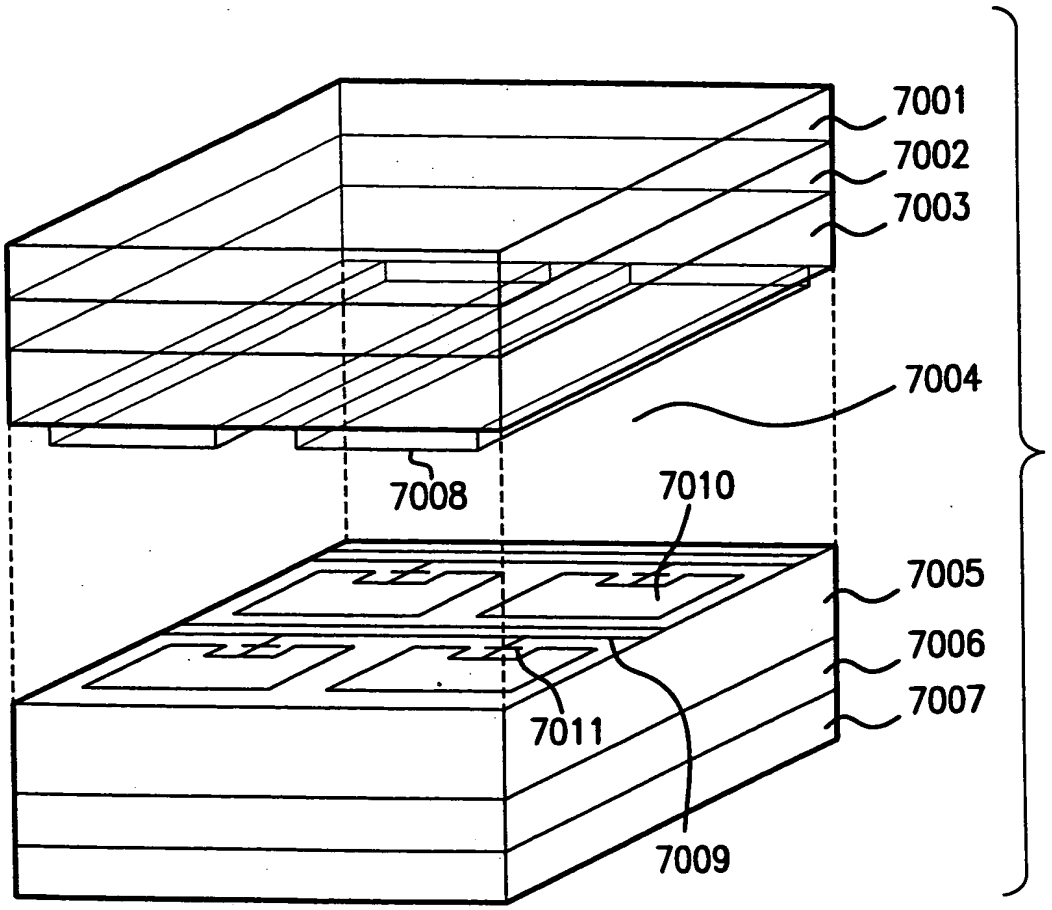


FIG.70

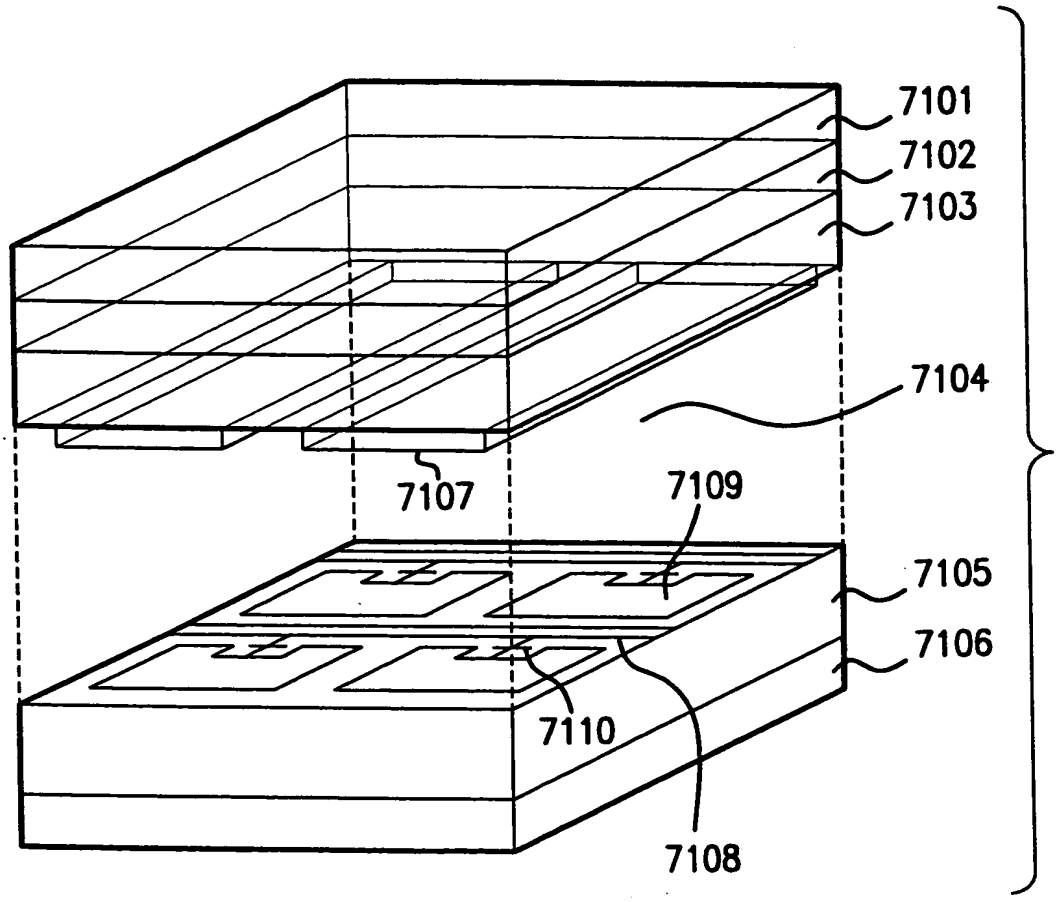


FIG.71

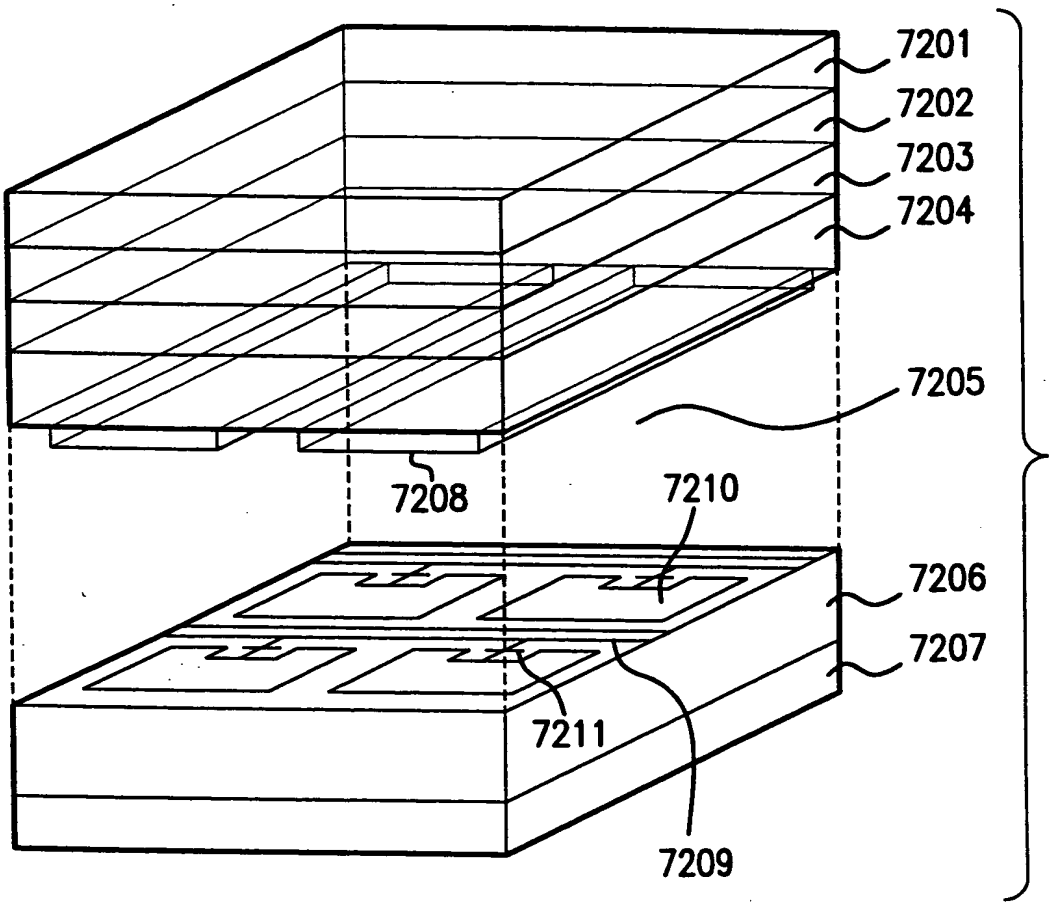


FIG.72

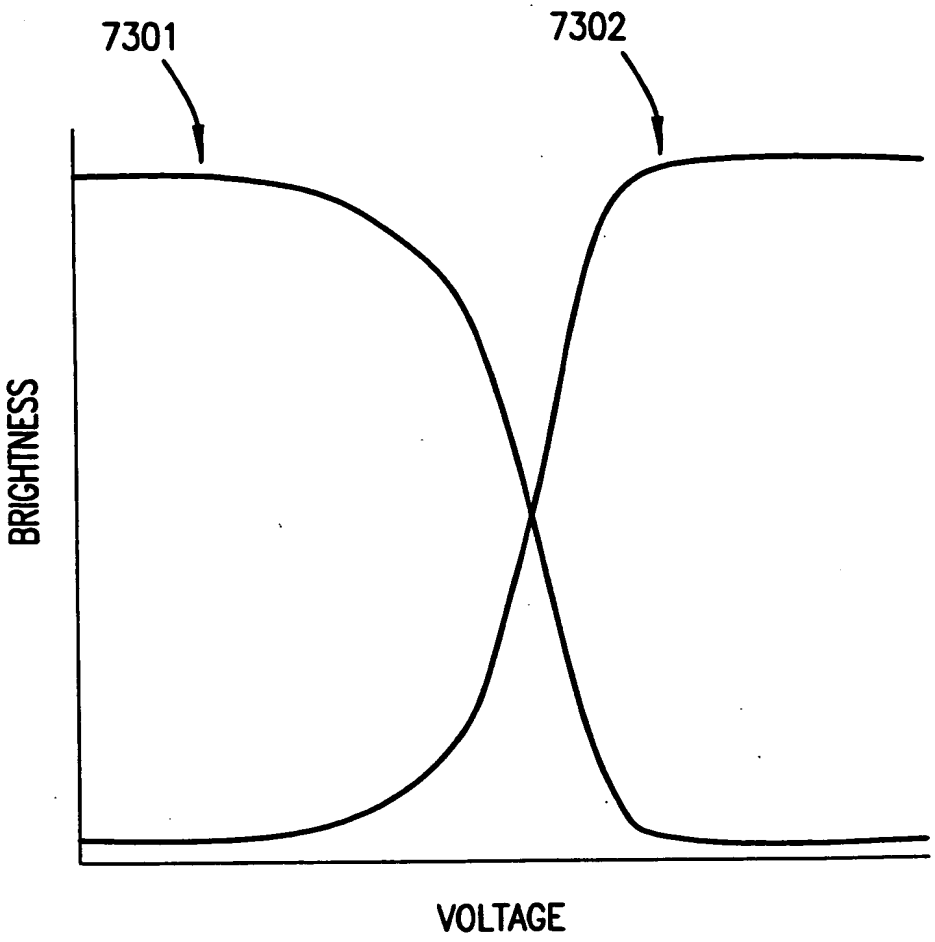
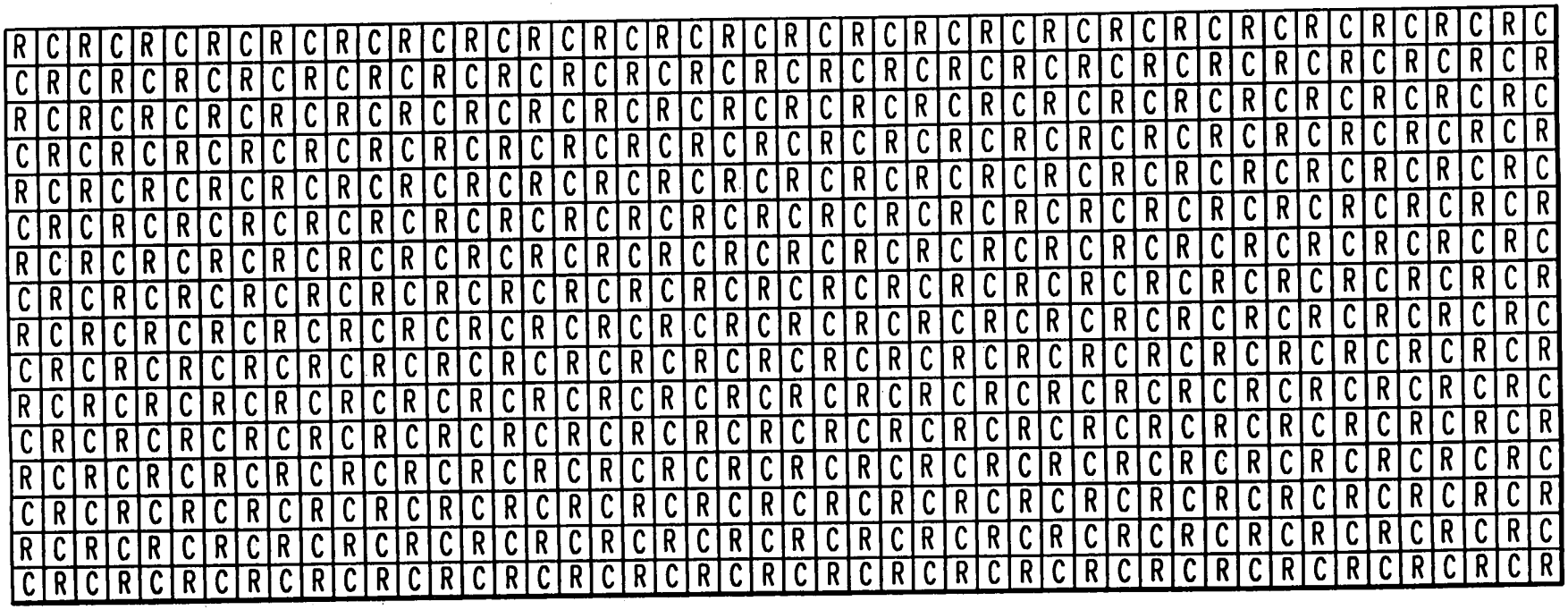


FIG.73


R C R C R C

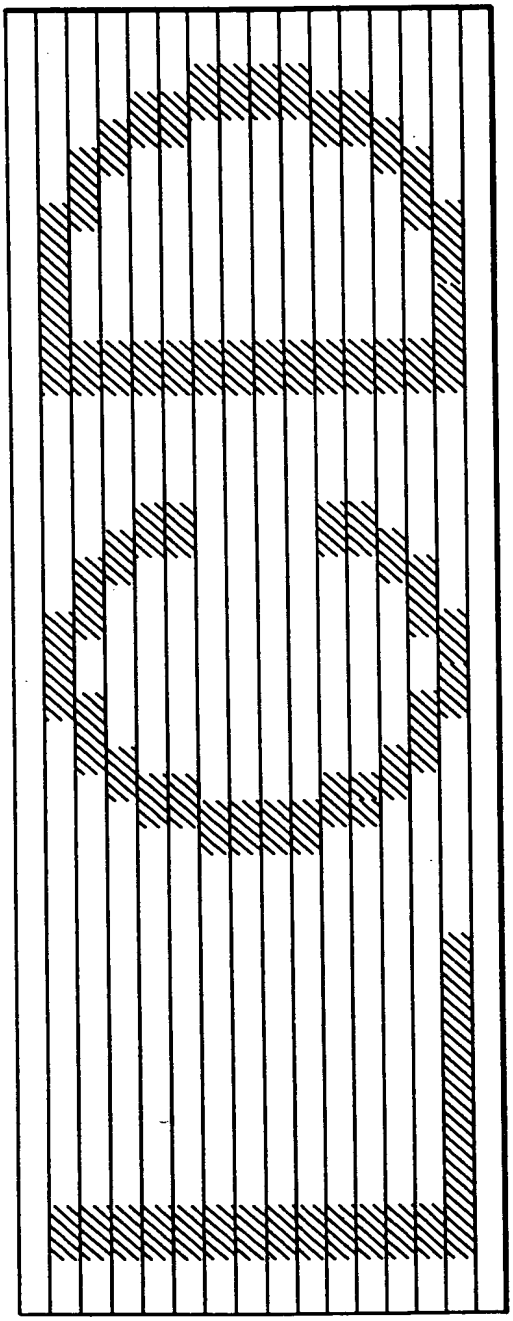


FIG.74b

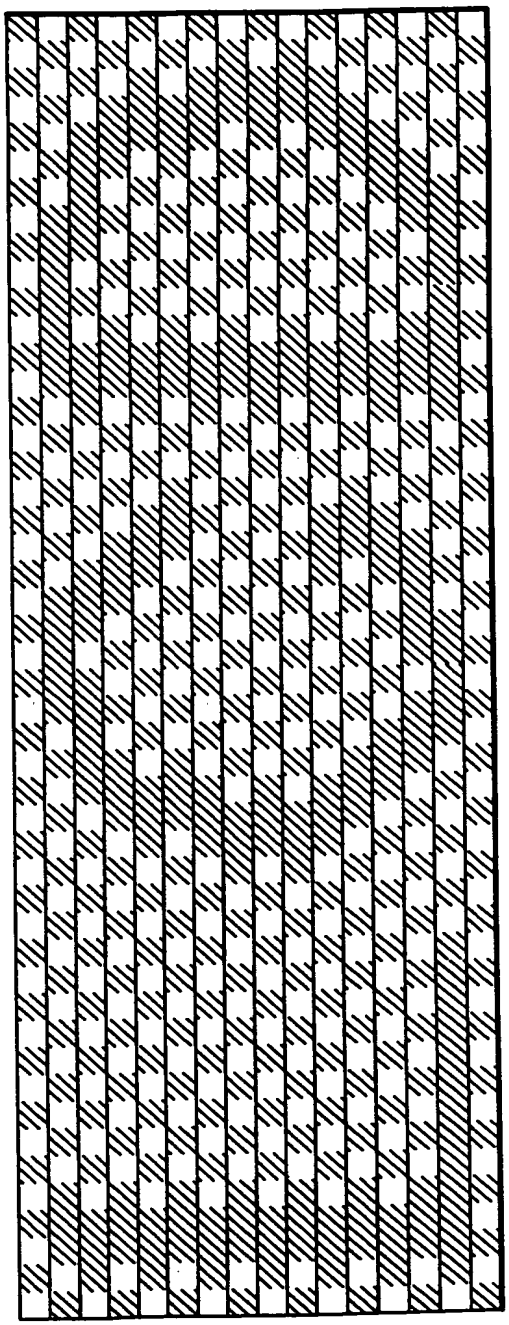


FIG.74c

09/254,369 PCT/US97/15469

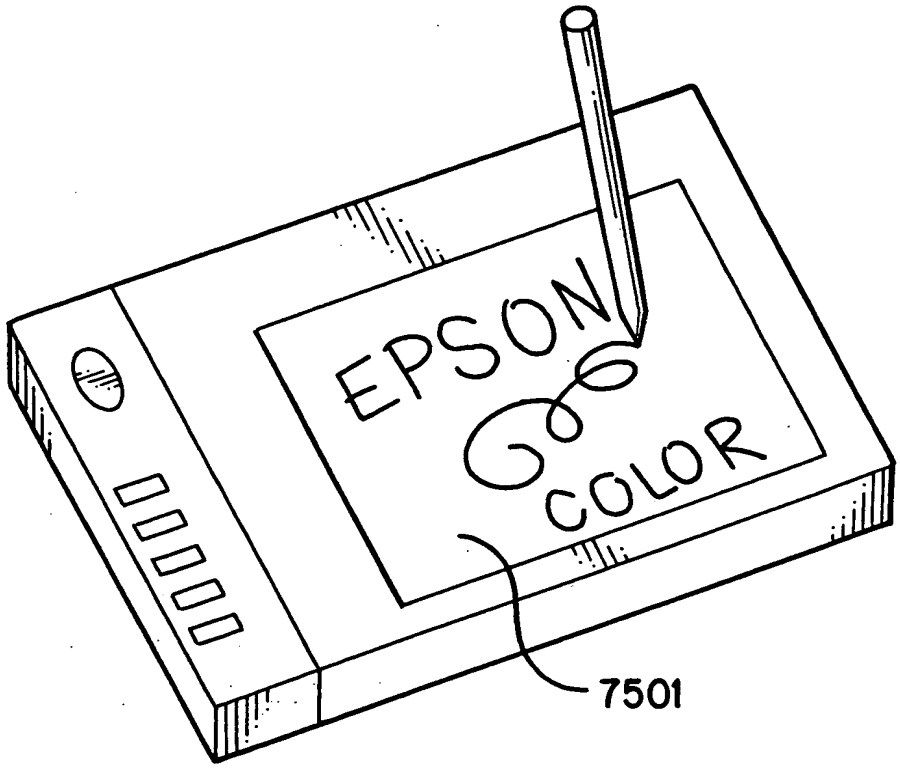


FIG. 75

09/420,240 - 10/25/99

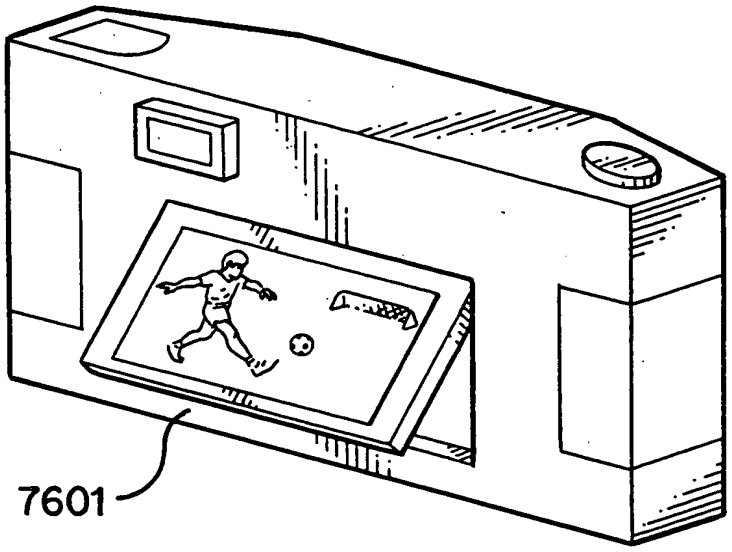


FIG. 76

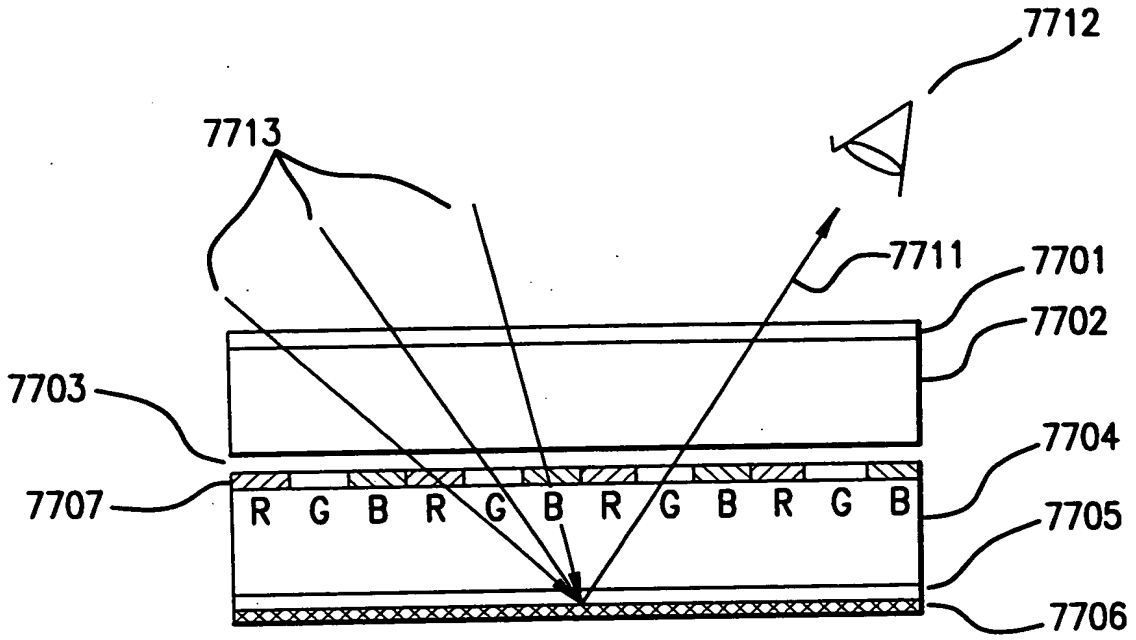


FIG.77a
PRIOR ART

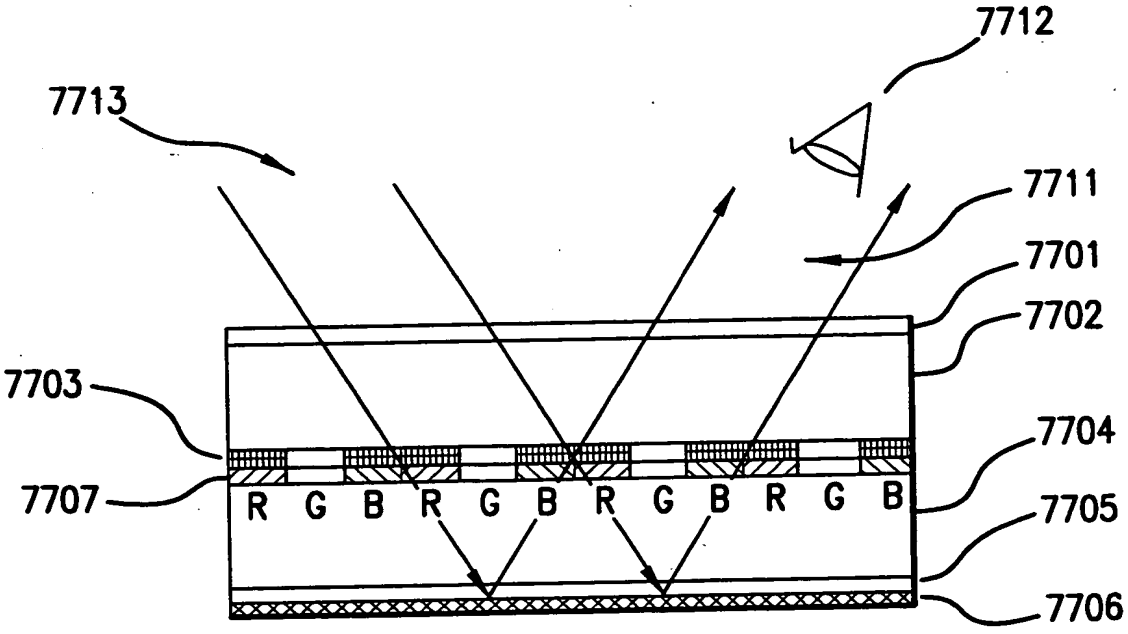


FIG.77b
PRIOR ART

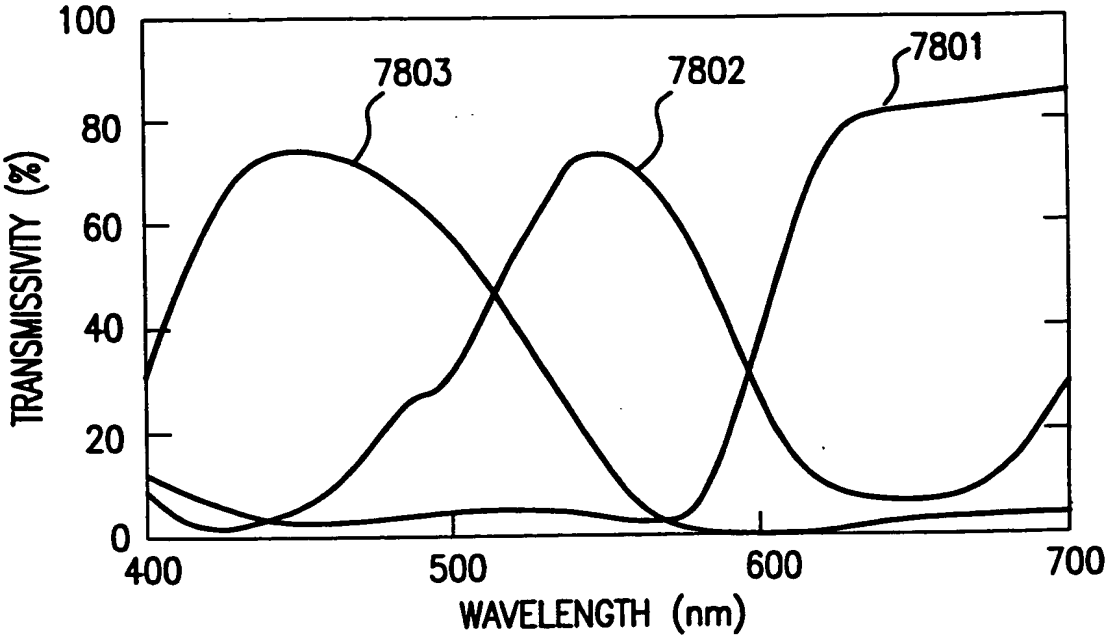


FIG.78
PRIOR ART

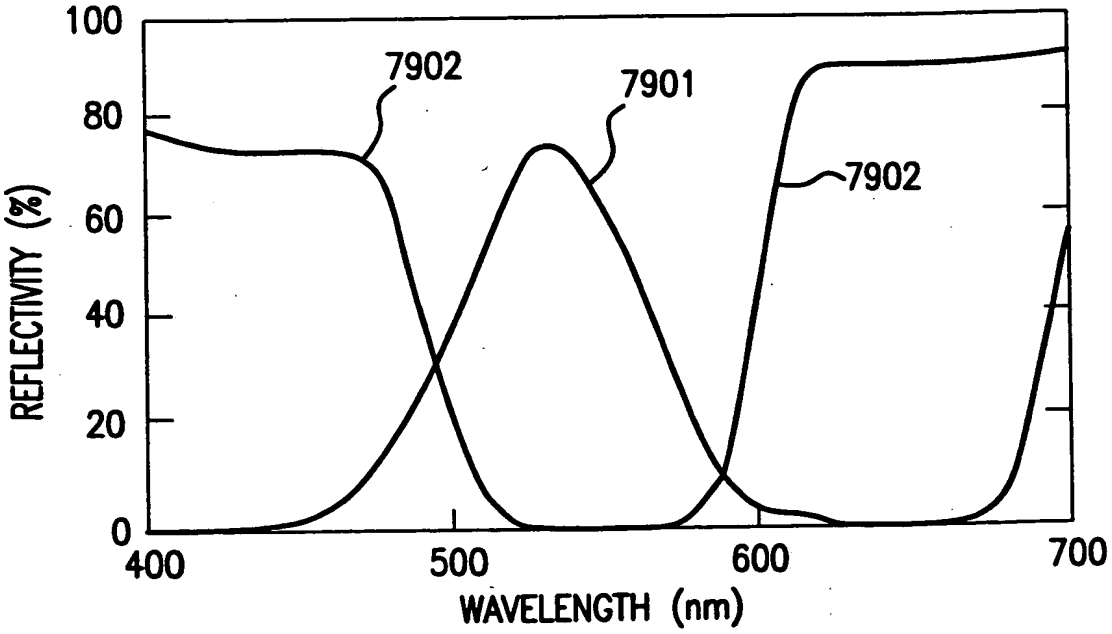


FIG.79
PRIOR ART

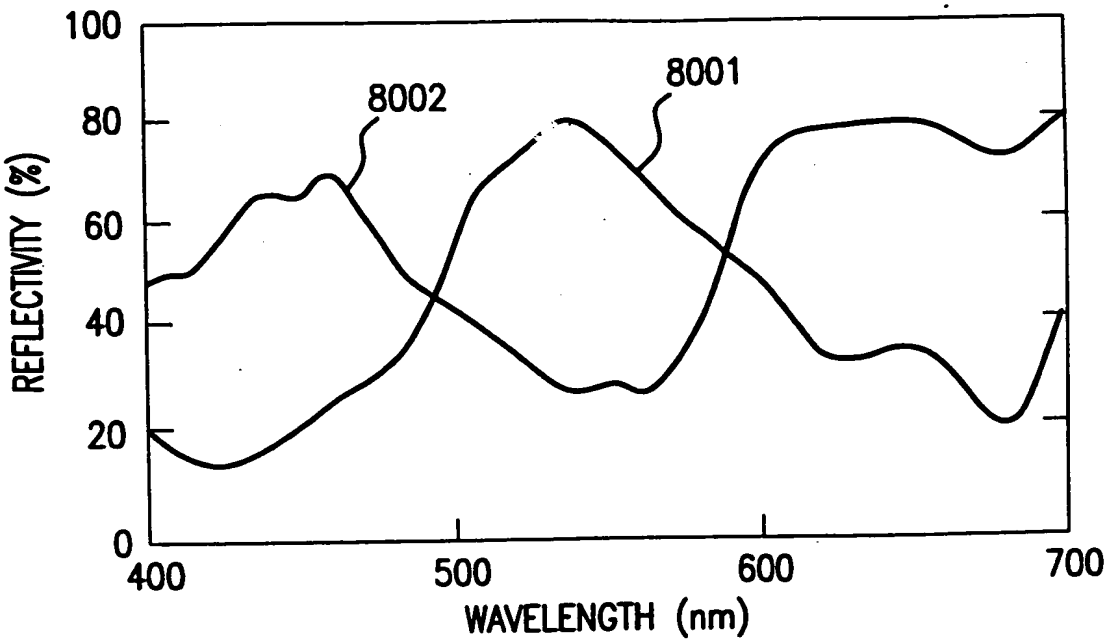


FIG.80
PRIOR ART

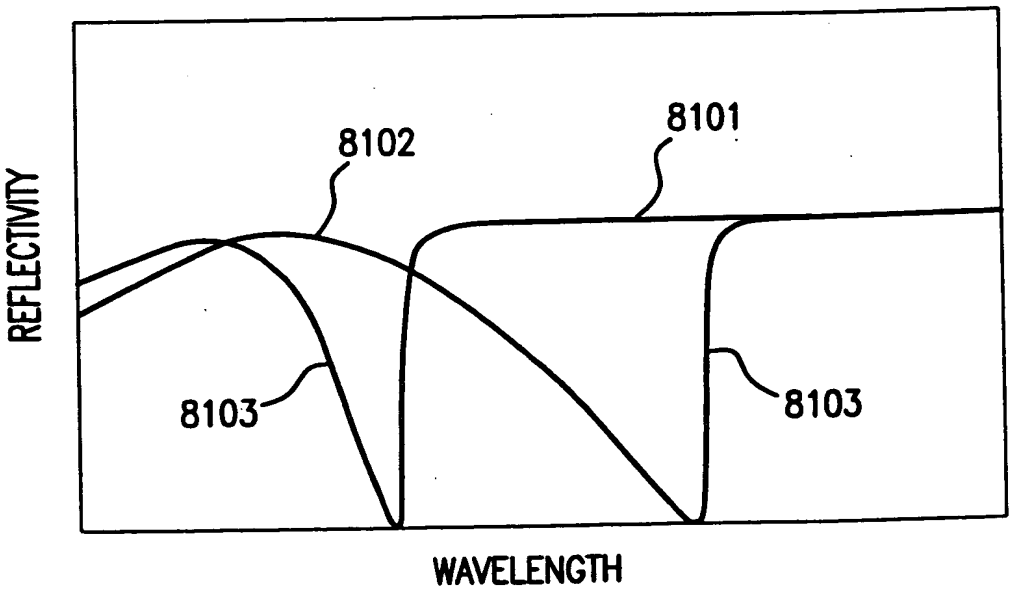


FIG.81
PRIOR ART